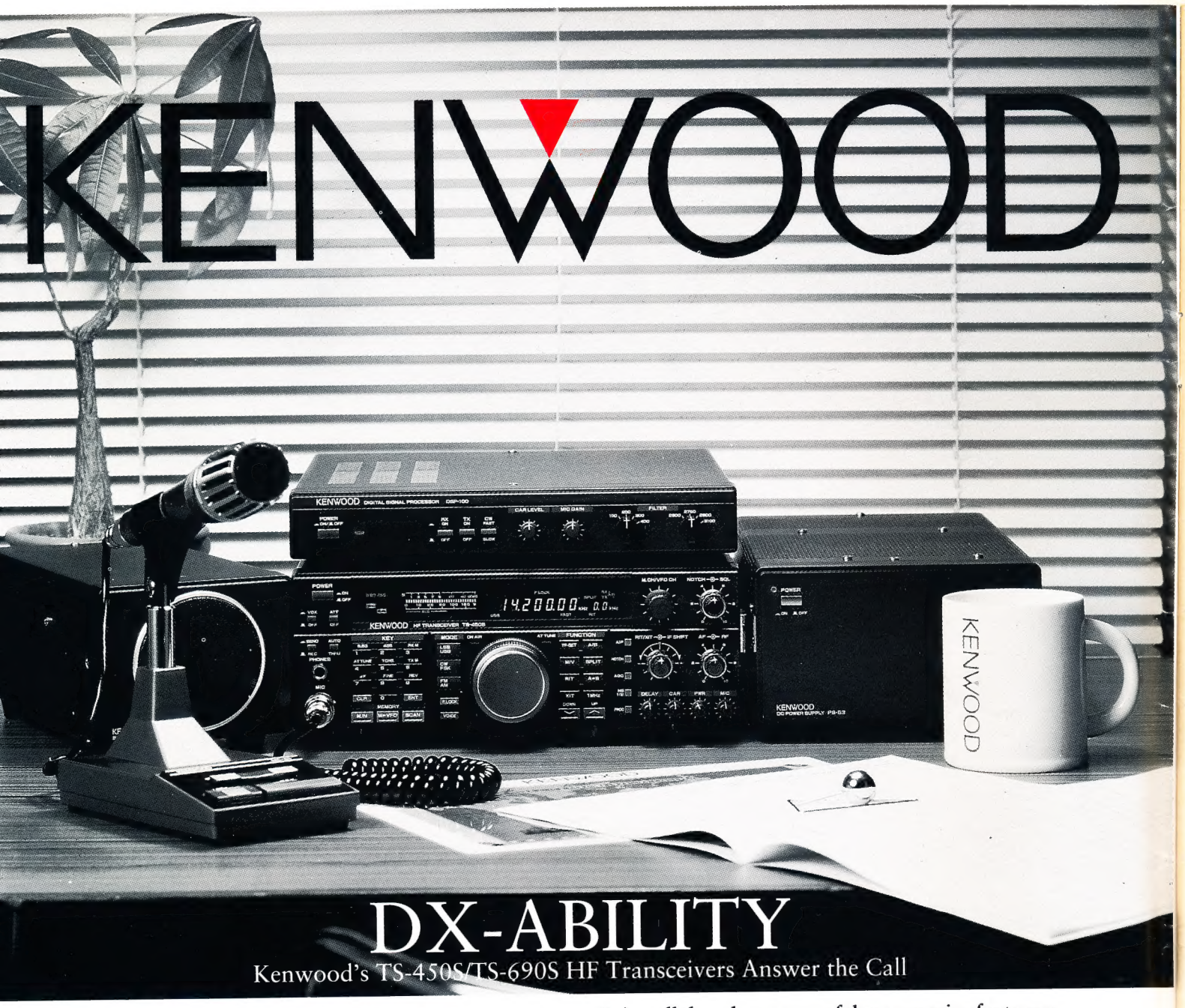
AMATEUR RADIO

DECEMBER 1992 RRP $3.25

- Melbourne's Lord Mayor opens VI3 MEL
- WICEN — What is it?
- Review — Yaesu FT2400 H

WIRELESS INSTITUTE OF AUSTRALIA

THE WIA RADIO AMATEUR'S JOURNAL



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AMATEUR RADIO

THE WIA RADIO AMATEUR'S JOURNAL

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Cover

Melbourne's Lord Mayor, Councillor Desmond Clark looks on with obvious interest, while Tad Dobrostanski VK3UX establishes contact with overseas amateur radio stations, using the special event callsign VI3MEL, during the inaugural stages of the celebrations commemorating the 150th Anniversary of the incorporation of the City of Melbourne. Refer to the special article on page 8. Photography by P Slodowy.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest National Radio Society Founded 1910

Representing the Australian Amateur Radio Service — Member of the International Amateur Radio Union

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Editor's Comment

Bill Rice VK3ABP
Editor

Re-Cycling

As all good Greenies know, re-cycling is the process of using things again, either in original form or re-processed into something else. The wasteful alternative is to throw things out as garbage after using only once. Classic examples are plastic bags and aluminium cans. One of these days I hope to write an article on how aluminium cans can become a propeller for a wind-driven generator.

However, it is not re-cycling of physical hardware that I want to mention now. The perennial problem of an appropriate editorial topic arose again. This time it was our Production Editor, Bruce VK3UV, who came up with the suggestion, "Why not repeat some of the stuff you wrote years ago? There is a whole host of new readers now, who haven't seen it before!" So here is the re-cycled editorial for July 1984!

Hey, just a moment, people! Don't stop reading now! I'm not going to repeat all that eight year old stuff just as it was. But I think we can have a lot of fun comparing now with then, particularly where once or twice I put on the Nostradamus hat! The latter is a very unreliable piece of headgear unless one makes one's predictions in such vague ambiguous language as to be capable later on of any interpretation, including what actually happened!

In 1984, Ron Henderson VK1RH had just joined Executive, the first non-VK3 to do so, and I suggested that he represented the dawn of a new era. By 1994, I surmised, we might be holding all-Division Executive meetings with members participating from their own homes via amateur satellite 3-D TV, with "computerised data links providing hard copy of all paperwork to all concerned".

That last bit sounds very like the packet systems we now have; but the TV system may be unlikely, as soon as 1994.

Even now, as we all know, Ron Henderson has progressed in eight years from being the new boy on Executive to being Federal President. Unfortunately, some of the other suggestions were a little farther from present reality. Use of packet, or any other amateur communications, for the conduct of Institute business would contravene the present amateur regulations ("private and unimportant messages, etc"). But holding Executive meetings now would be rather difficult, in view of the fact that Executive was abolished at the 1992 Federal Convention.

Maybe Federal Council or Board meetings, or Extraordinary Conventions could still develop into something like that 1984 pipe-dream. Perhaps? Incidentally I WAS still smoking a pipe in 1984, but gave it up in 1987. But that's another totally irrelevant story.

On behalf of the Publications Committee and staff at the Federal Office, I wish all readers the compliments of the coming festive season, and trust 1993 will be one where we can all progress.

ar

President's Seasonal Message

Ron Henderson VK1RH

The season of "Peace on earth and good will to all" has slipped around again. We might ask how does that affect us radio amateurs? Have you detected a shortening of attitude towards others in recent times? I have! It's obvious when reading the correspondence sent to the WIA, when listening on air, or reading the packet bulletin boards or just talking to amateurs. Is it a sign of the difficult times we are enduring? Some would say yes and point to the increases in violent crime in support of their views. But do we radio amateurs have to let ourselves become involved in unpleasantness, for we have a lot of good going for us?

I look back at the year just closing and all the WIA has achieved. Matters such as provision of the amateur examination service, the impending deregulation of licence conditions, a new limited novice licence, and recognition of the qualifications of combined licence holders, have all been positive changes. On the international scene the satisfactory outcome of WARC92, the reintroduction of amateur radio in several countries and the consequent expansion of the DXCC list are all satisfying signs. Speaking of money matters, the holding of licence fees for next year, the holding of subscriptions by all WIA Divisions and the steady prices for new equipment are also all positive indications.

So, say the prophets of doom and gloom, where are the downs? Well, I would be less than honest if I did not recognise some. There has been a fall-off in volunteer workers in recent years. So much for the emerging age of leisure! This has affected the WIA, for we often now have to pay a person to do some task we could have found a reliable volunteer to do in years gone-by. There has been an increase in intolerance and less thought for others using amateur radio. It's seen in repeater abuse, wide and splattery signals, some particularly offensive bulletins on the packet system. It's also seen in a lowering of respect of a neighbour's right to enjoy

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Divsion, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers			Weekly News Broadcasts	1993 Fees	
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Secretary Treasurer	Christopher Davis Jan Burrell Ken Ray	VK1DO VK1BR VK1KEN	3.570 MHz 2m ch 6950 Rebroadcast Mondays 8pm 70 cm ch 8525 2000 hrs Sun	(F) (G) (S) (X)	$70.00 $56.00 $42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124 Phone (02) 689 2417 Fax (02) 633 1525	President Secretary Treasurer (Office hours	Terry Ryeland Bob Lloyd Jones Bob Taylor Mon-Fri 11.00-14.00 Wed 1900-2100)	VK2UX VK2YEL VK2AOE	From VK2WI 1.845, 3.595, 7.146*, 10.125, 24,950, 28.320, 52.120, 52,525, 144.120, 147.000, 438.525, 1281.750 (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay via a local 2 metre repeater. Sunday 1000 and 1915. Highlights included in VK2AWX Newcastle Monday 1930 on 3.593 plus 10mx, 2mx, 70cm, 23cm. News headlines by phone (02) 552 5188. Some broadcast text can be found on the Packet network.	(F) (G) (S) (X)	$66.75 $53.40 $38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Secretary Treasurer Office hours	Jim Linton Barry Wilton Rob Hailey Tue & Thur 0830-1530	VK3PC VK3XV VK3XLV	1.840MHz AM, 3.615 SSB, 7.085 SSB, 53.900 FM(R) Mt Dandenong, 146.700 FM(R) Mt Dandenong, 146.800 FM(R) Mildura, 146.900 FM(R) Swan Hill, 147.225 FM(R) Mt Baw Baw, 147.250 FM(R) Mt Macedon, 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday.	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (07) 284 9075	President Secretary Treasurer	John Aarsse Ken Ayers David Travis	VK4QA VK4KD VK4ATR	1.825, 3.065, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz. 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) (G) (S) (X)	$70.00 $56.00 $42.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Secretary Treasurer	Bob Allen Roland Bruce Bill Wardrop	VK5BJA VK5OU VK5AWM	1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 145.000 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North,(146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555m 146.5000, 0900 hrs Sunday	(F) (G) (S) (X)	$70.00 $56.00 $42.00
VK6	West Australian Division PO Box 10 West Perth WA 6005 Phone (09) 388 3888	President Secretary Treasurer	Cliff Bastin John Farnan Bruce Hedland-Thomas	VK6LZ VK6AFA VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz. Country relays 3.582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(R), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(F) (G) (S) (X)	$60.75 $48.60 $32.75
VK7	Tasmanian Division 148 Derwent Avenue Lindisfarne TAS 7015	President Secretary Treasurer	Tom Allen Ted Beard Peter King	VK7AL VK7EB VK7ZPK	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.100 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) (G) (S) (X)	$67.00 $53.65 $39.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).						

Note: All times are local. All frequencies MHz.

Membership Grades
Full (F) Pension (G)
Needy (G) Student (S)
Non receipt of AR (X)

Three-year membership available to (F) (G) (X) grades at fee x 3 times.

leisure time pursuits without annoying radio frequency interference.

At this time of the year we traditionally make good resolutions and promises to do better next year. Will you all join me in trying to make amateur radio in Australia a better thing? A pursuit everyone can all enjoy, amateur and non-amateur alike. Will you pay attention to your operating habits, give only honest signal reports, fit that low pass filter in your transceiver output and "switch on mind before engaging keyboard"? While you are about it what about taking office in the WIA for a while, share the load and let your hard working friends have a year or so off to do some operating?

A merry Christmas and a happy new year to you all.

ar

WIA News

From the WIA Federal Office

Membership Renewals

Membership renewal notices for the 3870 members whose membership is due for renewal as at 1st January 1993 were forwarded out in the mail in the last week of November. The notices are new and very different from the previous notices. They are larger, printed in blue and black and white, and have a section for members to tear off and keep for their records.

Also, payment methods have been expanded to make it easier to renew. In addition to mailing cheque or credit card details to PO Box 300 Caulfield South VIC 3162 with the tear-off notice, members can now pay by phone using their credit cards, or by facsimile, also using their credit cards.

Delivery of Amateur Radio Magazine

Commencing with the December 1992 issue of Amateur Radio magazine, 64% of WIA members will have their copies of the magazine delivered by Streetfile, an alternate delivery system to the Australian Post Office.

Savings are expected to be in the order of $4,500 in a year. Deliveries will be made by hand, sometimes on a Saturday and Sunday. The flysheet for Streetfile deliveries will look like the usual flysheet, but will be printed in red.

The delivery times are expected to be little different to APO, although Victorian members may receive their copies a day or two later than usual, and more distant members a day or two earlier.

WIA at Communications '92

The WIA was invited to submit a paper to Communications '92, a conference for professionals on communications technology, services and systems held over three days at the Sydney Hilton in late October.

The invitation came as a result of the WIA's participation in the Australian WARC92 delegation earlier this year.

A paper entitled "The Amateur And Amateur Satellite Service — A Microcosm of Radio Communications" was prepared by David Wardlaw and Ron Henderson and accepted for publication in the conference proceedings. David presented the paper to the conference.

Communication '92 was sponsored by The Institution of Engineers, Australia and co-sponsored by The Institution of Radio and Electronics Engineers, Australia; The Institute of Electrical and Electronic Engineers Inc; Telecommunications Society of Australia; Australian Information Technology Council and Standards Australia.

The WIA's paper covered the whole gamut of amateur communications, with emphasis on the wide variety of modes and frequency bands available to amateur operators. The opportunity was taken to inform the audience of the range of activities in which radio amateurs take part. In particular, emphasis was placed on satellites, data communications and the more exotic modes such as meteor scatter, moon bounce and VHF/UHF communications via "aircraft trails".

Exposure to professional audiences of this nature provides valuable publicity for Australian radio amateurs and the WIA. A large number of professional engineers and communicators are licensed amateurs, but are often reluctant to admit it in some circles.

As a matter of interest, at WARC92, the IARU left out registration sheets and by the end of the conference some 10% of delegates had signed-in with their callsigns. The WIA will continue to raise the profile of amateur radio with the learned societies in Australia wherever and whenever the opportunity arises.

Amateur Radio in the Yellow Pages

The WIA is to seek the listing of a special category heading in the Yellow Pages telephone directories in each state.

This action came out of a motion put before the WIA Board Meeting over 24-25th October.

The WIA is requesting a national heading of "Clubs, amateur radio" be created, so that the WIA and amateur radio clubs and societies who want to be listed can be readily contacted by people seeking information on amateur radio and amateur radio organisations.

Wireless LANs

One of the latest trends in the computing world is to link computers via radio or infra-red transmissions. Dubbed "wireless" local area networks (hence, wireless LANs) they are replacing the collection of cables and conduits draped around office walls or ceilings that interconnect networked computers at present.

As this emerging technology may impinge on amateur radio, the WIA has been monitoring their introduction over the past year and a half.

At the recent Communications 92, a session was devoted to wireless LANs and our speaker at the conference, David, VK3ADW reported on a LAN operating in the Industrial, Scientific and Medical (ISM) band at 2400 — 2500 MHz. Whilst amateurs have an allocation from 2300 to 2450 MHz we use it on a basis of accepting interference because of that ISM status. Domestic microwave ovens operate in this band.

A variety of wireless LAN

systems were surveyed in an article in the Feb 92 issue of PC Magazine. They were: CarrierNET, a system using carrier current technology on the building's power mains with a carrier frequency of 200 kHz.

WaveLAN, ARLAN, RadioLink and LAWN, all interfaces operating at 902 to 928 MHz over ranges under 100 metres.

RadioLink, operating in the ISM band of 2400 to 2480 MHz.

Altair, an Ethernet interface operating at 18 to 19 GHz over ranges under 30 metres.

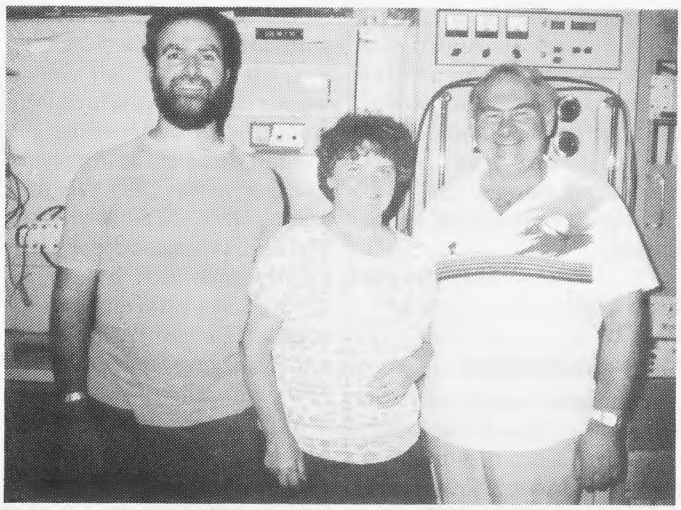
InfraLAN, a Token-Ring interface working in the infra-red band, 350 thousand GHz for the purist, over ranges under 30 metres.

President Visits VK8

Federal President Ron Henderson VK1RH took the opportunity while on a business trip to northern Australia in October to meet with amateurs from the Alice Springs and Darwin Amateur Radio Clubs.

In Alice Springs Ron met with Geoff Kong VK8TJ, the Alice Springs Amateur Radio Club President and Peter Sumner VK8ZLX, an office bearer. The club operates a repeater and a bulletin board. It also conducts FCC examinations through the USA Volunteer Examiner scheme for US citizens resident in Alice Springs. The Club will shortly start conducting Australian examinations through the WIA Exam Service.

Geoff and Peter explained proposals for a move of the clubrooms to more suitable premises and the possibility of setting up a local radio museum there. We look forward to a photographic report of the opening of the new premises in due course.



Ron Henderson VK1RH, WIA Federal President, with Bill "Spud" Murphy VK8ZWM, Darwin Club president and Coral Haworth VK8KCH, past president.

Perhaps the associated museum could be added to the attractions of that inland city, if only for passing amateurs!

In Darwin, Ron attended a family barbecue farewell held by the Darwin Amateur Radio Club to see off Henry Newland VK8HN, who is moving with his wife to VK3.

The evening barbecue also doubled as a planning evening for JOTA the following weekend and SEANET 92, which was hosted by the Darwin club at the end of October.

Ron was shown the Darwin Club's beacons; three professionally built units

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You might think that a few years of reviewing H.F. transceivers would make any amateur a bit jaded, well obviously not, here is what Neil Duncan, VK3OK, had to say about the IC-728...

"Getting the IC-728 up and running is a treat"

"It almost runs itself — the learning time is very low"

"DXing on 20 metres is a snap with a hot little receiver like this one"!

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"I must say that the IC-728 offers very good value for money indeed."

Amateur Radio Action — 9 June 1992

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operating on 10, 6 and 2 metres. They are shortly to be joined by a fourth unit on 70 cm. Ron was also shown the Club's bulletin board system and HF transmitters used to re-radiate the VK5 Division's broadcast each Sunday.

Federal News Dissemination

As announced on the Division's broadcast each in November, the manner and form in which news and information from the Federal WIA will be produced and disseminated is to change.

Two major changes were decided. Firstly, Federal Tapes will no longer be produced on a regular basis. While they have been part of the Divisional news broadcast scene for the past 17 years, the Board, in reviewing Federal News dissemination, concluded that the effort used to produce the Federal Tapes placed excessive demands on the time and resources of the Federal Office, and that more use should be made of modern communications means to replace them.

Secondly, in examining how the flow of news and information would be best coordinated, without further taxing the Federal Office, the Board saw the need for a WIA Federal Media Officer. Roger Harrison VK2ZTB, a member of the Board, was appointed to the position.

In bringing the long running Federal Tapes to a conclusion, at least as they existed, the Board was mindful of the need to maintain an adequate news and information flow in their place. The Board was also aware that the state Divisions, through their weekly news broadcasts, may wish to present WIA Federal news in their own distinctive styles, from which they may have felt constrained in the past.

With almost all news source material produced on computers, it is now possible to send disks containing up-to-date news to Divisions and other organisations. These disks can be used for locally generated broadcast scripts, electronic mail, packet and RTTY bulletins, FAX and hard copy in magazine news columns.

Whilst the WIA Federal Media Officer, the president and, on occasions other Board members, will be involved in preparation of media releases, in order to meet the ASC requirements all news releases will flow formally through the WIA Federal Board of Directors' secretary, a position currently held by the General Manager, Bill Roper VK3ARZ.

The news and information now disseminated on computer disks will be augmented with the wide ranging snippets that are regularly seen in the WIANEWS column in *Amateur Radio* magazine.

In looking back over the seventeen years of Federal Tapes, the WIA Federal Board expressed its sincere appreciation and gratitude for the enormous effort expended by the two Federal Tape co-ordinators, Bill Roper and Ron Fisher, who almost singlehandedly provided the service.

One for the Ladies

Simone Buck, VK2TOY/P, has gained a Certificate of Achievement for an ATV contact on 1250 MHz with VK2ZQW/P for a distance of 105.7 km.

According to John Martin 2VK3ZJC, Chairman FETAC, the first YL member to gain a distance record was Joan Wallace, VK4BJE, who with her husband VK4KHZ set a 50 MHz record of 21,754 km in March 1991.

Contest News

There is no winner of the WIA Contest Championship for 1991, according to Neil Penfold, the WIA Contest Co-ordinator.

This Award receives rather less publicity than some of the others, as it is awarded on the basis of the aggregate score for at least three of the WIA contests. It can therefore be won only by a member who has submitted logs for at least three contests. Full details of this Award will be published in the contests column of *Amateur Radio magazine* in the near future.

Neil also reports that a number of Remembrance Day logs were received after the closing date of 2nd October 1992. They included two from VK2, seven from VK3, and one each from VKs 4, 5 and 6. It is intended that next year the closing date be brought forward from seven weeks after the Contest to three weeks after.

Perhaps members will remember to send them in earlier then.

1993 Call Book

Divisions should by now have adequate stocks of the 1993 Australian Radio Amateur Call Book. This edition contains over 40 pages of reference material and information about band plans, repeaters, distance records and contests, DXCC countries and accredited examiners, as well as the listing of over 18,000 Australian Callsigns.

Described by some early readers as our "best ever" production, this year it uses a clearer typeface than some previous editions, for which some of our members with poorer eyesight will be very grateful. Be sure to get your copy early while stocks are plentiful.

WIA Exam Service Report

The WIA Exam Service has concluded a successful first year of operation, since commencing on 1st October 1991, accrediting over 400 examiners around Australia, and providing over 3000 individual exams for nearly 2000 candidates in total.

It must be remembered that for the first three months, examinations were also being run under the previous system.

Here are the figures as at 30th September 1992:-

Accredited examiners registered:	410
Percentage of examiners who are WIA members:	68.05 %
Examination material forwarded for:	413 Exam Events
Exam Events completed:	395
Total number of candidates:	1873
Total number of individual exams:	3202
Average candidates per Exam Event:	4.74
Average individual exams per candidate:	1.71
Average pass rate:	51.44%

It interesting to note that to that date, although in many cases there is a considerable time delay while the materials are in the hands of Australia Post, only one set of examination materials has failed to arrive at its destination.

Saving Money on Rigs

Imported transmitters and transceivers are effectively "duty free" for Australian radio amateurs, so long as the equipment is not capable of transmitting outside the permitted amateur bands.

By an agreement between Customs and the WIA, the WIA Technical Equipment Advisory Committee (TEAC) inspects incoming equipment and, where appropriate, certifies that it cannot transmit out of band, and cannot be simply modified to extend its range.

It is an expensive procedure for an individual to have a piece of equipment certified and then claim reimbursement of Customs duty paid because a large handling charge is applied by Customs. Suppliers who import transceivers in quantity are granted an Import Duty Exemption Certificate based on examination of a sample of each model submitted for assessment.

If the TEAC consultants determine that modifications must be made to keep the transmitting ability within the approved limits, these modifications are the responsibility of the supplier/importer, who must certify that all subsequent imports will be modified accordingly.

If later versions of the same model show design changes which extend the transmitting range beyond the amateur bands, they must be re-certified. Or if it becomes known on the "network" that a new modification has been designed, it is the responsibility of the importer to remedy the situation.

This procedure is to ensure that Australian amateurs have access to equipment free of unnecessary duty charges. It is one of the WIA services which benefits all amateurs, both members and non-members alike.

Repeater Operation

Many amateurs still don't get the "hang" of repeater operation, it seems. While customs vary from state to state, the basic principles remain, but many repeaters are misused at times, either deliberately or unintentionally.

The 1993 Call book includes a short guide to use of voice repeaters.

Normal good manners should prevail during repeater operation as well as on HF. Despite some deregulation, it is still necessary to identify your transmissions at the appropriate intervals, and to refrain from unidentified transmissions.

If you're new to repeaters, you should listen for a while before participating to ensure that you observe the local conventions. Hopefully, more experienced operators will educate the newcomers in correct usage.

Unfortunately, bad habits tend to spread if allowed to persist. Do those who attempt to join into a group using a repeater by saying only "Break" or "Breaker" realise that they are emitting an unidentified signal, and so should be ignored? Do you always remember the three second break before replying?

Hurricane Andrew

The ARRL Letter for 12th October 1992 is devoted to a report on communications by amateur radio in the aftermath of Hurricane Andrew in Florida on 24th August.

Over 150 amateurs provided communications to a range of agencies for nine days, using VHF, HF, packet and other modes. This operation proved once again the value and versatility of amateur radio and the dedication of the members of RACES (Radio Amateur Civil Emergency Service), says the ARRL.

The report notes the problems suffered due to loss of repeaters and established antennas, interference from damaged commercial systems, overloaded telephone lines and damage to cellular telephone cell sites. It also emphasises the need for planning for mobility and flexibility, for keeping the systems as simple as possible and for self-supporting response or "jump" teams, while commenting that the ability of amateur radio to provide hardware to others may be as effective as providing a total network.

Advertisers

The WIA is always pleased to receive information which may help to sell advertising in the pages of *Amateur Radio magazine.* Members also are welcome to use the magazine to advertise their businesses. Rates and planning schedules are available from this office on request. Please also remember to tell suppliers when a sale or enquiry is a result of an advertisement.

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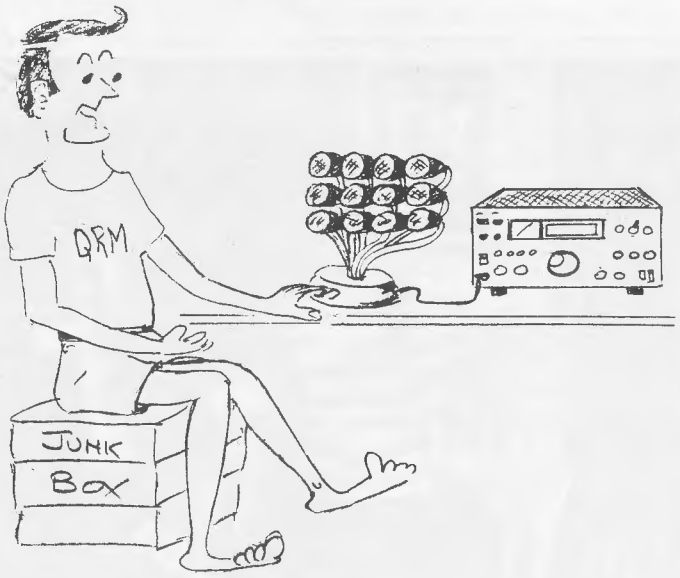


Q's LAW
VK4BCR

THE MICROPHONE HERE IS A TRIPLE FOUR!

ARC Polonia Activates VI3MEL Melbourne's 150th Anniversary

George Kaska VK3OO,
and
Tad Dobrostanski VK3UX
Amateur Radio Club "Polonia" Inc
PO Box 2376
Richmond South Vic 3121

Listening intently to special event station VI3MEL are Melbourne's Lord Mayor Councillor Desmond Clark, Tad Dobrostanski VK3UX, and the Consul General Republic of Poland Dr Grzegorz Pienkowski.

THE IDEA OF CELEBRATING Melbourne's 150th birthday in August 1992 with an amateur radio transmission to the Sister Cities of Melbourne was put forward to the members of ARC Polonia by the president Tad Dobrostanski VK3UX at the Club meeting in February 1992. The concept was accepted by all present with enthusiasm.

The request for a special event call sign AX3MEL150 was turned down, the next best call allowed was VI3MEL (to those unfamiliar with it MEL is the formal marine and aviation radio abbreviation for Melbourne). Following a lot of hard work in organising, coordinating all the official time tables, and locating a suitable venue, the D-DAY and the hour was set.

The launching of VI3MEL was to take place on the 28th of August 1992 at 3.30 pm by the Lord Mayor of Melbourne at the Polish Association Club (Syrena) Stud Road, Rowville. Following the opening addresses, the first 15 radio transmissions to the world were to be made by the Lord Mayor personally, one contact for each 10 years of Melbourne's anniversary. We would have liked 150 contacts but were aware that the time factor and possibly propagation would be against such an idea.

Many VIPs were invited to witness such an important event. They included not only the Lord Mayor himself, but the Consul General of the reborn Republic of Poland Dr Grzegorz Pienkowski, who agreed specially to fly from Sydney, the Mayor of City of Knox, WIA Federal representatives, WIA Victorian Division president Jim Linton and secretary Barry Wilton, ICOM Australia representatives Chief Executive Mr Kyoshi Fukushima, and well known Melbourne amateur ICOM's Duncan Baxter VK3LZ, representatives from Moorabbin Radio Club, DoTC and many others.

Early in the morning on the 28th August, Doug Rowe VK3KMN from Nally Towers arrived with his truck and the 50 foot tower. With the help of Club members, Werner Wulf's tribander was mounted and raised ready for the operation. The rest of the equipment on loan from ICOM Australia was set up in the building. It included an ICOM IC765 and ICOM 2KL linear. The ARC Polonia VK3CRP was ready to

use VI3MEL in about two hours. All of the "workers" exchanged their overalls for business suits; some were unrecognisable in their new-found respectability!

Propagation was checked about 1 pm but unfortunately Murphy had already exercised his authority, as the bands were almost lifeless. A few weak stations were heard but certainly nothing that could have been recognised by the untrained ear. The contacted stations reported some drift in the transmitted signal. Tad began to panic, blaming everything except the climatic conditions. The standby transceiver, an ICOM IC735, was used to monitor the IC765 and no drift was apparent. It was hoped the situation would improve by "D" hour.

The VIPs began to arrive at about 2.30 pm . They were welcomed by Tad with drinks,and savouries in the foyer. At the same time operators were trying to "prepare" the station for the contacts by the VIP in the radio room.

Following the speeches, the Official party moved over into the "operating theatre". The Lord Mayor, Councillor Desmond Clark, in presence of Tad VK3UX made the first contact with Ed W6KCB, in Colorado USA at 0415Z. Next was Bulgarian station LZ1KOZ.

The Lord Mayor very quickly mastered the microphone and appeared to be enjoying himself. His last contact was made at 0511Z. Overall seven contacts were made with the USA including one with W5MEL, one with Bulgaria, three with Poland, one with Austria, one with Germany and two with Australia VK4OD and VK3JI. The Consul General of Poland Dr Grzegorz Pienkowski then made three contacts. The station was then closed for operations from Rowville.

For the following month many Club and guest operators worked from their own stations, on HF bands and two metres, to give the opportunity for all operators to make contact with the special event station.

Special colour diplomas signed by the Lord Mayor have been produced to confirm the contacts made by him as well as contacts made by the Consul General of Poland. Very attractive QSL cards have been sent to confirm all the other contacts.

We wish to acknowledge special appreciation to ICOM Australia for the loan of the transmitting equipment, Werner Wulf VK3BWW for the loan of a specially built and assembled 5 element tribander, to Doug Rowe VK3KMN who made a special return trip from the country so that his Nally Tower could be used on the day free of charge, and to the Committee of the Polish Club Syrena for their effort in supplying the venue, friendly staff, food and the drinks. As well we must mention all the silent members of the ARC Polonia who worked behind the scenes and without whose effort it would have been impossible to stage an event like this.

There were some disappointments. It would have been nice to establish contacts with the Lord Mayors of the sister Cities such as Los Angeles, Osaka, St Petersburg etc. All the appropriate people were notified, but all declined due to the time table.

The local media, including TV stations were notified but only the Ethnic radio stations 3EA and 3ZZZ, and the Polish paper turned up to report the event.

In summary the launching of the special event station VI3MEL did promote Amateur Radio, and put Melbourne on the map of the world once again.

The photographs published with this article were kindly supplied by P Slodowy.

QSL Card especially designed for all contacts with VI3MEL.

The publicity poster prepared by the ARC Polonia to celebrate Melbourne's 150th Anniversary.

Help stamp out stolen equipment — keep a record of all your equipment serial numbers in a safe place.

What is WICEN?

Leigh Baker,
Federal WICEN Co-ordinator
Australia

AT THE LAST Federal Convention I was asked, as Federal WICEN Co-ordinator, to conduct a Review of WICEN status and operations around the country. I thought that results of the Review should be put before the Amateur fraternity. Some of the news is good and some not. It may surprise many that WICEN Membership is about 10% of all Amateur Radio operators and the percentage is growing yearly. This is a good opportunity to let WICEN members and other Amateurs know what is happening within WICEN around our country as too often we simply assume that they know what is happening.

Most of the information given in these articles was produced either for the review or for general publicity purposes. We are grateful to the editors of AR for the opportunity to present it to you.

WICEN'S Objective

To make the resources of the Amateur Radio Service most effectively available to the community in times of disaster or sudden need.

WICEN Goals

1. To identify the potential services that WICEN can provide.
2. To provide, when called upon, those services in an efficient and effective manner.
3. To ensure those organisations that WICEN supports are able to effectively utilise WICEN Services.
4. To respond as best as possible to requests for assistance from appropriate Authorities under DISPLAN.
5. To investigate new avenues/technology which can assist us in our objectives.

A Federal WICEN Co-ordinator is appointed by the Federal Convention of the Wireless Institute of Australia and is an ex-officio member of the Federal Council. The Federal WICEN Co-ordinator acts as a WICEN focal point of contact and co-ordinator between the State Co-ordinators and the Natural Disasters Organisation (NDO) and co-ordinates any amateur communication facilities required on a national scale for disaster purposes. The Federal Co-ordinator also assists the State WICEN organisations in matters of common concern such as allocation of frequencies, procedures and training together with liaison with the Federal Executive. Each State WICEN division has its own Co-ordinator and controls its own divisional structure.

WICEN operators offer the disaster control authorities various communications modes, with an equally wide range of sophisticated equipment, and the trained disciplined manpower to operate the facilities, and if required, competent relief personnel for the Authorities' own communications terminals — all at little or no cost to the Authorities, the Government or the general community.

The trained operator core of WICEN is available on request and in the case of a larger emergency would act as a nucleus to enable the rest of the Amateur Radio population to be put to use.

Due to the number of exercises that we are asked to assist with, WICEN throughout Australia has a fairly deliberate policy of being a low profile organisation, preferring to keep our list of "customers" small to prevent over-extending our resources.

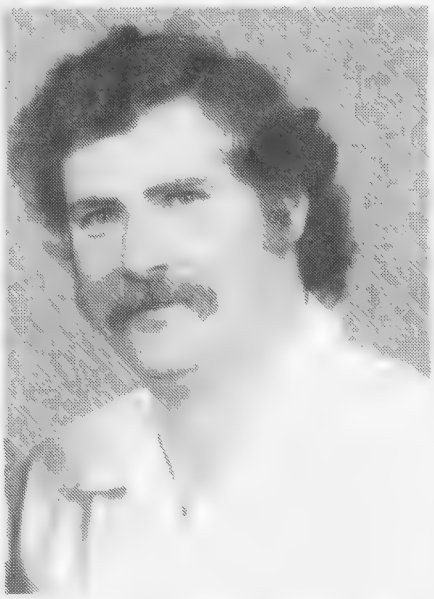
From the Amateur viewpoint participation in WICEN training and exercises is a preparation for the time when the amateur can offer a unique service to the public during a time of need and hence put something back into a hobby which is capable of offering so much in return. It must be remembered, however, that the Emergency Services which will call on amateurs for assistance such as, the Police, Ambulance, Red Cross, Health Department or the State Emergency Services are professionals involved in the preservation of life and property. Hence assistance which is uncoordinated or untrained in the special requirements of these services is not acceptable.

Accordingly the WICEN organisation provides the necessary liaison and training so that the assistance that is given is a reliable communications facility capable of working in conjunction with any of the emergency services.

Capabilities

Applications typical for WICEN during emergencies are:-

- Providing radio links for groups with no communications of their own, ranging from a link between two points, to providing a network of stations many kilometres from a control station.
- Providing radio links between different services with no direct communications, eg Community relief field services and their respective Headquarters.



Ian Watson VK5KIA WICEN SA/NT Director

- Providing links between services with no compatible radio frequencies, eg Fire Brigades working in another area where their own frequencies are not applicable.
- Providing additional radios or other communication equipment where all available equipment is inadequate, eg FAX or RADIO TELETYPE, Packet, etc, for emergency services.
- Providing links for low priority traffic which does not justify diversion of a channel from other uses, eg a link from evacuation centres to relief organisations.
- Providing a health and welfare message distribution network where no telephones are available so that disaster survivors can inform relatives etc.

National WICEN Telephone Bulletin Board Network

Introduction:

With the advent of computers and data communication it is now a relatively simple process to exchange information quickly between groups of Amateur Radio Operators around the country or, for that matter, the world. The purpose of this paper is to discuss and define the possible uses of a national Bulletin Board Network for WICEN.

It should be noted that Packet radio and BBS's have other advantages and that these types of systems can be linked together in Emergencies.

Does WICEN Need a BBS System?

As the various WICEN Divisions undergo changes in their structure and in the way they carry out their duties they are often trying to re-invent things that have already been done by some other state. Apart from being a waste of resources this is a long and tedious process. A national forum is also required for discussions on many subjects like National WICEN standards, Net Control operation, maximising field efficiency, new training techniques, research into new technologies, administration, procedures, etc.

A BBS Network can also form the basis of an efficient administrative message handling system with other Agencies in Emergencies. Sitreps can be directed at pre-determined intervals to pre-determined Agencies during the Emergency by people with no knowledge of the system or the network.

The only way that WICEN can function efficiently as a national entity is to maximise our communications with each other and with other appropriate organisations.

Who Can Access WICEN BBS Information?

Anyone! All that you need is a computer, phone modem and any type of communications software. However, there are several levels of information and access for different groups, ie General public, WICEN members, State or Federal Executive, or other Disaster Agencies. Access to information at higher levels is by prearrangement. For more details see one of the Boards or write to any of the WICEN contacts

Node BBS

At this time the WICEN Victoria BBS is being used as the node from which all other BBS's input and output as it is the only BBS dedicated to WICEN-only matters and therefore its set up is designed exclusively for WICEN purposes.

The WICEN Victoria BBS currently has the following areas :

Message Areas

1 Local WICEN Victoria Message area
2 Fido National/International Net Mail Area
3 WICEN Needs Message Area.
4 WICEN Vic Events Message Area.
6 Repeater Message Area.
7 Radio Modification Message Area.
8 Situation Reports from UNDRO and other sources.
9 For Sale and Wanted Items Message Area.
10 National Region Co-ordinators Echomail Conference.(VK's 2,3,4)
11 WICEN Victoria Database Updates Message Area.
12 DISPLAN Vic Database Updates Message Area.
30 WICEN National Echomail — General Interest (VK's 2,3,4)
31 WICEN National Echomail — National Co-ordination (VK's 2,3,4)
40 Disaster Management — General Interest (Public Mail Only)
50 Emergency Communications Conference (Public Mail Only)
60 TCPIP Group International Echomail Conference.
70 Victorian Technical Advisory Committee Message Area.
71 FTAC National Echomail Conference.
81 WICEN Nat Tech Support Group Echomail Conference.(VK's 2,3,4)
82 WICEN Nat Data Communications Echomail Conference.(VK's 2,3,4)
83 WICEN Vic Think Tank Message Area.

File Areas

1 General WICEN Vic File Area
3 WICEN Needs File Area.
4 WICEN Vic Events File Area.
5 WICEN Vic Forms File Area.
6 Repeater File Area.
7 Radio Modification File Area.
8 General Programs File Area.
9 Disaster Research Newsletter and SITREPs
10 Vic Region Co-ordinators Report File Area.
11 WICEN Victoria Database File Area.
12 DISPLAN Vic Database File Area.
13 State and Federal File Area.
40 Common DISPLAN Agencies File Area.
70 Victorian Technical Advisory Committee File Area.
80 WICEN Vic Newsletter Prep. Area.
81 WICEN Vic Technical Support Group File Area.
82 WICEN Vic Draft Document File Area.

The Victorian WICEN BBS has been designed to have a series of access levels each to achieve different ends. When a person logs on to the system he will only see and be able to use those file and message areas that he has been given prior access to, ie a general user won't be able to use those region, state or DISPLAN agency areas. If you feel that you need to have access to an area currently denied you must get permission from the State Co-ordinator or Federal Co-ordinator as appropriate.

The Bulletin Board also has restricted areas for specific projects that are being undertaken by WICEN. To enter areas such as this an additional access flag code is required to be programmed against the person's user record before

entry will be granted. In this way groups, such as members of the Victorian Technical Support Group, the Victorian Technical Advisory Committee and WICENEWS, or the Federal co-ordinator can prepare and distribute documents in confidence prior to presentation to meetings etc.

The FIDO address of WICEN is 3:633/404. The InterNet address of WICEN is VK3UR@CSOURCE.OZ.AU

Inter BBS Conferences

On application and subject to certain conditions various conference areas on the WICEN Vic BBSs are available to other BBSs for use and information, these being Message Areas 30 — 60. While the WICEN general is freely accessible through the echo some of the others may have (local) restricted access due to the nature of the contents. Any BBS wishing to echo these areas should apply through their Divisional WICEN Co-ordinator or to the Federal Co-ordinator.

List of BBSs Currently Linked Into the WICEN Data Network BBS

VK2:
The Serviceman BBS (02) 698 1565 The North Sydney Packetgate (02) 954 0934
VK3:
WICEN Victoria BBS (03) 802 0913
VK4:
SunMap BBS (07) 393 0311 Ampak Northgate (07) 263 7070
VK6:
Perth Omen (09) 244 2111

Network Roles

Any WICEN phone BBS Network must be capable of filling three separate roles:

The first role of a BBS is one of local administration, news and information dissemination.

The second function is that of forming part of a "network" of Australian Amateur and Emergency Service BBS's (see article on the ADMIX and ADMIN networks) that can either feed into or feed out of a node (dedicated) WICEN BBS. The same applies to International systems. Our equivalent organisations in many other countries would probably like to swap information on organisation and systems as well as having the appropriate contact information in case of emergency. After all, many have gone through problems which we have not yet discovered and vice versa.

The third is the creation of an operational system so that the BBS network can be used as an effective tool in an emergency.

Re the Third Role

An operational network system would need to have :

A. Multiple line access and "on line" editing at the responding BBS. Where possible WICEN should also try to develop a system of using the dedicated line "commercial" data network systems for this phase to reduce reliance on the Telecom exchange network. Redundant linking paths are essential to ensuring messages and files can get through to the desired recipient.
B. Built in secure (encrypted) message transmission capability throughout the network.
C. The capability to be tied to the Amateur Packet Radio BBS and transmission linking systems during emergencies. It is noted that this does not fit the normal licensing requirements of the Department of Transport and Communications.

Australian Disaster Management Information Network:

In July 1990 a National Workshop on Information Exchange Needs Assessment was held at the Australian Counter Disaster College (ACDC) in Mt Macedon Victoria. This workshop was attended by representatives of Agencies from all parts of the Commonwealth who had roles in the prevention, mitigation or recovery from Disasters.

Part of the workshop included discussions on how to make information more freely available between the Agencies during all phases of a Disaster and the principles of Phone Bulletin Board systems were examined. Although WICEN was not a participant in this workshop the model that they examined was based on ours as it was the only one used by a DISPLAN agency in Australia (at that time).

In June of last year, WICEN was asked to join in discussions with the Australian Counter Disaster College, other DISPLAN agencies and the Centre for International Research on Communication and Information Technology (CIRCIT) regarding data communications and how it can benefit disaster related agencies. Meetings have been held monthly and WICEN has been represented by Leigh VK3TP (Federal WICEN Co-ordinator), Mark VK3ZR (Victorian State Co-ordinator) and David VK3UR.

A pilot project is now under way to form a data network based on Bulletin Board Systems. Discussions have been based in many areas including network integrity security, disaster mitigation as well as activational and recovery phases of operation. As WICEN was the only DISPLAN agency with BBS experience we have played a key role in these discussions. The Australian Counter Disaster College has set up its test BBS called ADMIX — Australian Disaster Management Information Exchange at CIRCIT in Melbourne so that preliminary trials can be made with the WICEN BBS. When this test phase has concluded the ADMIX board will be moved to ACDC at Macedon, to the North of Melbourne. Agencies from other States and Federal Authorities will be asked to join in as the system is more fully developed.

One of CIRCIT's roles in the pilot project is in the development of links into other data networks so that research facilities and their users can gain access to the information available. This will also provide redundancy for the primary links. With assistance from CIRCIT and WICEN other DISPLAN agencies are also preparing systems which will integrate into the network. When established the network will allow for electronic mail between participating DISPLAN agencies and for conferences to take place on subjects common to various groups.

In Victoria, VK3UR and myself have had several meetings with Community Services Victoria (who are responsible for the Recovery phase), Victoria SES, the Country Fire Authority, and the DISPLAN Officers of the Victoria Police to assist with equipment and software purchase and installation and also with training. All of these Agencies are now in the process of prepar-

ing submissions for funding of their own BBS systems for their own internal use. There will be "Disaster" areas and echo mail facilities between these systems.

Through ADMIX and CIRCIT we have knowledge of and access to some information from many other systems around this country and around the world. These include:

EPIX

The Emergency Preparedness Information Exchange — is a computer based bulletin board system sponsored by Emergency Preparedness Canada and managed through Simon Fraser University, British Columbia, Canada. EPIX is designed to stimulate networking and to facilitate the exchange of ideas and information among federal, provincial, local, and private-sector organisations about the prevention of, preparation for, and mitigation of risk associated with natural and human-made disasters.

EPIX provides electronic mail service and also has specialised message and file areas containing discussions and information about selected topics in emergency preparedness. EPIX provides 24-hour direct communication with persons working in this field; thus, it is a means to exchange ideas with others in a given field, particularly during times when it is difficult to meet in person.

UNIENET

UNIENET is a network of computers linked together electronically. It places members of the world-wide disaster management community in direct contact with each other, and provides them instantaneously with both background and operational disaster related information. UNIENET operates as a joint venture between United Nations agencies and other governmental and non — governmental organisations.

UNIENET will provide you with direct communication with persons working in the field of disaster management, through the electronic mail facility. It also has bulletin boards and databases of disaster-related information. It is possible to send telexes and faxes via the network as well as to access commercial databases.

The following organisations maintain bulletin boards on UNIENET:

UNDRO	Office of the United Nations Disaster Relief Co-ordinator
PCDPPP	Pan-Caribbean Disaster Preparedness and Prevention Project
PAHO	Pan-American Health Organisation
AIT/ADPC	Asian Institute of Technology/Asian Disaster Prep. Centre
IDNDR	International Decade for Natural Hazard Reduction
OAS/DRD	Organization of American States/Dept. of Regional Development
UNHCR	United Nations High Commissioner for Refugees
WHO	World Health Organization
FAO	Food and Agricultural Organization

One of the participants in the original ADMIX workshop was Dr David Butler of the Natural Hazards Research and Applications Information Center of Boulder, Colorado, USA who is an expert in computer information dissemination techniques. Many Agencies present wished to get access to the Center's Monthly bulletin on Disaster Research and the meeting was told that if they could get into the WICEN Vic BBS they could get the information as we were already getting the Bulletin and could pass current and old issues on.

Computers and WICEN don't mix — or do they?

"Computers and WICEN don't mix!" and "I got into WICEN to talk to people, not to type to them!"

These statements and others similar have been heard on odd occasions over the last few years relating to computers, data modes and WICEN, but just how true are they? This article intends to dispel the myth and show why WICEN is experimenting with these one-eyed

ADMIX project steering committee, From left: N Kanarev (ACDC), J Salter (ACDC), R Fleming (Sysop Admix), M Halkier (Eastcom P/L), D Tilson (WICEN), M Dods (WICEN), M Whelan (CFA), L Baker (WICEN), D Craven (VicSES), C Jenkin (CFA), P Buckle (CSV), G Davis (VicSES), P Anderson (CIRCIT)

Some of the delegates at the NSW State conference from left Brian Mennis Queensland State Co-ordinator, Ken Ray ACT Co-ordinator, Phil Greentree NSW Ops co-ordinator, Leigh Baker WICEN Federal co-ordinator, Ian Nance NSW State President.

cyclops and why voice is still an integral part of its strategy.

What is the aim of WICEN? Quite simply, the aim of WICEN is to pass messages when called upon by DISPLAN as accurately, efficiently and swiftly as possible. How this is to be achieved is possibly the most contentious issue confronting WICEN planners in recent times.

The advantages of voice over data:

a) It is better for informal messages as questions can easily go back and forth;
b) It can be easily monitored by other stations in the network to keep track of what is going on;
c) More people have voice facilities than data facilities;
d) Voice is faster to establish than data;
e) Voice is more portable than data.

The advantages of data over voice:

a) It is easier to transfer large amounts of information;
b) It can easily be encoded for the transfer of sensitive information;
c) "What you type is what they get" due to error correcting protocols;
d) It is easier to extend data communications over longer distances compared to voice at VHF and UHF;
e) Data can be easily transferred into the recipient's computer system;
f) Screen layouts can be easily customised for each individual service, negating the need to carry different types of message pads;
g) Hard copy and soft copy records are kept for future reference;
h) New formats can be transferred across the link, allowing everyone to be kept up to date.

As can be seen by the above, like the various frequency bands available to Amateurs, each mode by themselves is valuable but when combined they make WICEN better able to perform its duties.

Why does WICEN have a telephone BBS, aren't we supposed to use radios?

As was stated in the aim of WICEN, we have to be able to pass messages efficiently and swiftly. Every time a message is passed through a digital repeater a delay is added and throughput drops. At times it is more efficient to utilise a packet radio link out of a disaster-affected area and then enter a Gateway which converts the radio signal to a telephone signal, which can be passed by high speed modem to the required destination point.

Other times, your radio location may be suffering from so much interference, it is impossible to hear anything over the local noise; a solution still must be found.

Let's take a recent exercise as an example: WICEN was activated as part of a DISPLAN training exercise in Gippsland Victoria. The function WICEN was asked to perform was to pass casualty and evacuation traffic back to Red Cross in South Melbourne. The operator arrived at Red Cross and found that there was only one VHF frequency that was useable due to an incredibly high noise floor generated by paging transmitters, and other noise generating devices. No repeater was useable as the local interference (noise floor) swamped the receiver, and HF could not be used for similar reasons. Packet Radio was one option. Using the Phone network and a modem, with or without the BBS, was another.

Data Communications using Radio

Introduction

Data Communications has been a steadily growing area of interest for all Amateurs over the last 5 years. For WICEN to make use of data communications an essential requirement is to ensure both error free message transfer and that the message gets through. Other requirements that WICEN places on all forms of communications mediums are that they can be used in portable circumstances and that they are commonly available. WICEN gratefully acknowledges the assistance of the many individuals and specialist clubs for their assistance in the projects described below. We cannot do it alone and we also will need their help in any activations. If there is a choice between protocols WICEN will almost always be driven by popular choice rather than by what would suit the individual.

Different methods of data communications

Radio Teletype (RTTY):

RTTY, the oldest of commonly used forms of data communications, is a simplex form of data transfer. Simplex communication meaning that there is no form of acknowledgment sent back from the desired recipient. RTTY utilises the Baudot code which only allows Upper Case characters to be used. Traditionally RTTY operates at data rates of 45.45 and 50 baud. To generate a RTTY signal requires the user to have a RTTY Modem and a terminal. RTTY modems can be built by the user or can be purchased as part of a multi-mode data controller for approximately $600.

Comment: RTTY is not used much in WICEN exercises these days due to its slow data rate and lack of error correction and flexibility. Additionally many of the older mechanical machines are line frequency sensitive. Allowing Upper Case characters and minimal punctuation could also be detrimental due to the limited character set.

AMTOR

AMTOR is a form of data communication that provides FEC (Forward Error Correction). It is popular for HF communications but has not had much exposure to VHF FM. AMTOR is a half duplex form of communications between two stations. When configured, the two stations act as a Master and Slave combination. A disadvantage of AMTOR is the fact that the Master and Slaves are always talking to each other, which prohibits other usage of the frequency in use. Similar costs and equipment are required to RTTY except the radio requires a very fast Tx/Rx switching time.

Comment: At this time WICEN does not use much data transfer on HF (one event in the last year). If and when it does this will probably be the preferred choice. In addition there are AMTOR to Packet Gateway systems that will transpose the protocols for HF AMTOR to VHF Packet and vice versa.

Packet Radio

Packet radio is a rapidly growing method of transferring data from point A to B. Packet radio is a full error correcting system operating at speeds ranging from 300Baud on HF up to 56kB on UHF with commercially available equipment. At the current time typical data rates are at 1200 Baud on VHF, with 2400, 4800 and 9600 Baud systems slowly becoming more readily available.

Packet Radio allows for digital repeating to occur between stations. The data throughput rate will be approximately halved for every digital repetition and will vary dependent on channel usage. For example, two stations (A and C) can talk through a third station (station B). Packet Terminal Node Controllers (TNCs) can be purchased from approximately $200 and can be used with a dumb terminal or a computer with software emulating a terminal.

Comment: In the last 18 months, the availability of portable and laptop computers at domestically affordable prices and the number of Packet Radio Terminal Node Controllers (TNCs) have made it justifiable for WICEN to perform research into data communications across radio.

To this end, WICEN Victoria has purchased a Paccom Tiny 2 TNC for use with the WICEN Laptop Computer and constructed a Portable VHF Frequency Agile Digital Repeater, licensed as VK3RPW.

Electronic Message Pads

WICEN Victoria is designing a form of electronic message pad that will allow a rapid form of transferring messages across either the PSTN or Packet systems. The page layout is being designed to allow for multiple formats depending upon the application. For example an electronic message for State Emergency Service will have the same layout as per their normal message pads, likewise for other DISPLAN agencies that have preferred message pad formats.

The key behind this is to have a list of different style layouts stored on each computer, then while the message is being generated a code will be selected for the desired layout. The receiving station will then recognise which layout is required and assimilate the message into the desired format. Care is being taken to ensure whatever programs are written for this task that they are compatible between different forms of computers, ie Apple Mac, Amiga, IBM, etc. If this is not followed then compatibility problems will occur.

Methods of encrypting the message are also being experimented with to allow the secure transfer of sensitive information.

NRIS Data

A scenario has been put forward to WICEN by Victoria Police and the Red Cross to transfer casualty and evacuation information out of a disaster area. This system is known as NRIS, an acronym for the National Registration Information System.

Currently cards are filled out at the disaster site and hand carried back to Red Cross in South Melbourne. The information is then keyed into the Department of Health computer located in Canberra. Delays of more than 8 hours can be experienced in the transfer of these details from the disaster site to the central computer.

WICEN has been asked to develop a means whereby data can be rapidly transferred from the disaster site to the central computer, thereby minimising the delay and maximising efficiency of the Police personnel currently assigned as the couriers.

Two methods are currently being developed to overcome these problems:

(i) The first is by entering the NRIS information into a database which is then sent by radio to Red Cross in Melbourne. The information is then printed out and rekeyed into the Department of Health computer.

(ii) The second involves establishing a PSTN modem at the Department of Health computer and running a terminal emulation program at the disaster site. If telephone lines are not available in the disaster area then a packet radio station will be established with a Packet Radio/PSTN Modem Gateway system outside of the affected area. This last method allows for real time entry and interrogation of the NRIS data.

At this time packet is still only considered useful to WICEN for short haul operations due to the extremely slow throughput when used through multiple digipeaters. Hopefully long distance throughputs will improve as the proposed high speed interlinks are integrated into the existing network.

Packet Cluster

Packet Cluster is a major refinement of traditional packet radio. Cluster uses the AX-25 protocol and revolves around users being connected to a Node. Dependent on the type of TNC in use at the Node, between 32 and 104 users can be connected at the same time. In essence a Node acts in a similar fashion to a Local Area Network (LAN). A Node can still be accessed through Digital Repeaters which can extend the coverage of the Node if required. Each Node or LAN allows for:

1) Local announcements to be made to all users connected to the Node,
2) Mail functions like that of traditional Packet Radio and Telephone BBSs,
3) File uploads and downloads,
4) Conferencing within a node,
5) Access to databases setup on the host nodes computer.

Expanding on the idea of a Local Area Network, Packet Cluster has been developed so that Cluster Nodes can be linked together via an RF backbone to form a Wide Area Network (WAN). Potential applications of a Wide Area Network for DISPLAN could be for electronic mail, message and file transfer within a DISPLAN agency or between DISPLAN agencies.

ELECTRONIC DISPOSALS

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Specials:

3 watt ceramic resistors 10c each
40 amp 12 V relays single throw $4
5A Bi Metal cut outs 35c each
CB/10m end fed mobile ant comes complete with coax and mount $12.00
Mains caps 240 v $1.00 each
ECL — ICs 10.000 series $3.50 per tube
2716 70c each or $10 per tube
9016 16k ×$12 per tube
TL082 Low noise op amp $1 each
10 μF 40 v low leakage Electrolytics $6 per 100
2200 μF 50 V axial 90c each plus lots components at reduced rates.

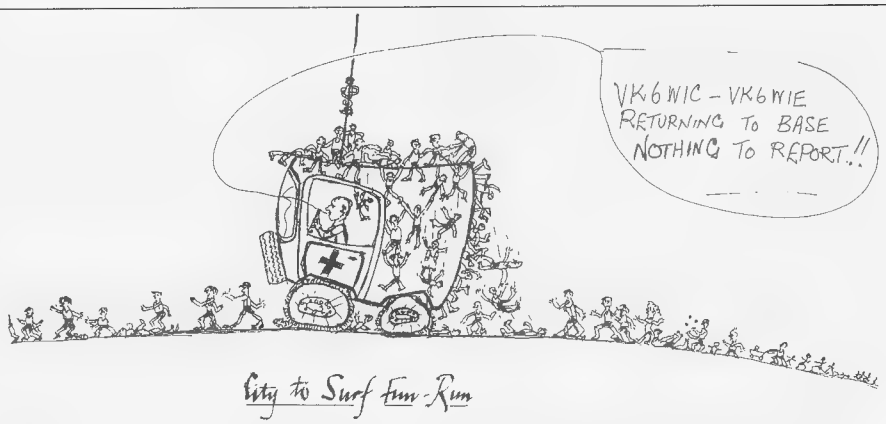
KITS (OR PARTS, BOARD, ETC.) AVAILABLE FOR DREW DIAMOND'S PROJECTS

When Nodes are linked to form a WAN, facilities include:

1) Announcements to ALL users in the network,
2) Conversation to any user in the network,
3) Access to databases common to all users in the network,
4) Wide Area Network conferencing,
5) Potential links into existing computer networks.
6) Traffic destined for use within a Node, ie local announcements and local conferences, will not affect the operation of the WAN as it will not appear on the backbone.

A Packet Cluster Network could established between DISPLAN agencies, including multiple Nodes for an agency. Usage of digital repeaters could be established to extend the coverage of an agencies Node, and usage of a Node for common usage by agencies not requiring a separate Node.

Comment: WICEN is currently evaluating a copy of the Cluster software and will probably adopt it for the purposes set out above. Cluster also has many uses in smaller events and can be used in conjunction with the scoring programs being developed so that all stations in a net will have access to scoring information and, more importantly to us, who is missing and their last reported location.



Summary

As can be seen by the above systems there are many paths that WICEN need to investigate further due to their inherent advantages and disadvantages.

It is felt however the key criteria in determining how WICEN will best utilise data communications in the future are:

1) Flexibility;
2) Compatibility;
3) Data Integrity;
4) Survivability;
5) Portability;
6) Ease of usage; and
7) Cost to the end user. **ar**

Some WICEN History — 1962

Emergency Services and SSB

Geoff Thompson VK3AC

DURING THE 1962 Bushfires, I had a communications receiver tuned to the bushfire frequency, and was struck with the complete inadequacy of the old AM communications method being used, with its interference and squeals when more than one station came on at once.

In any disaster plan which may be formulated for the future, communications will be most important. With the new Single Sideband method of communication, the system works without whistles and squeals. A group of people can all occupy the one frequency and exchange a conversation together, as though they were all in the one room, even though they may be separated by hundreds of miles.

Following those disastrous 1962 bushfires, Group Captain W R Garrett MLC, in whose southern province most of the 1962 fires occurred, spoke to CFA communications people and learned that interference on the emergency channel had been quite serious and had hampered the handling of the fire-fighting traffic. The idea of a demonstration of what SSB nets are doing every day on 7.1 was decided on, and a date set for such a demonstration.

Group Captain Garrett duly arrived at VK3AC's shack on a Thursday afternoon at four o'clock, where 12 active sidebanders were ready and waiting to go.

The method of clearing the air was to use a 500 Hz tone at VK3AC's rig. VK3AC functioned as the controlling station to carry out the following demonstration with these stations in the net:

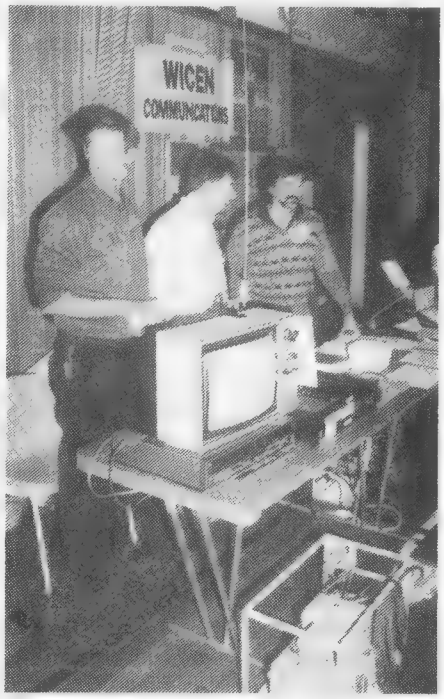
*VK3JK	Jim	Mornington
*VK3OZ	Percy	Ringwood
*VK3HG	Neil	Coleraine
VK3AHO	Bill	Kyabram
VK2AKC	Cec	Tomingley
*VK3XM	Les	Ormond
*VK5EF	Comps	Gawler (mobile)
*VK3KB	Alf	Brunswick
VK2ADV	Mac	Forster
*VK2ABD	Col	Edgecliffe
*VK3IY	Angus	North Balwyn
VK3AC	Geoff	East Hawthorn

* = Silent Key

At VK3AC's QTH, all stations were five and nine, with the exception of VK5EF, who was five and six from his car near Gawler.

The program was carried out as follows:

1. Each station was called in to identify itself and to give its location.
2. It was explained that when a 500 Hz tone was heard all stations should cease transmitting and should listen. All stations using fast-action vox.
3. All stations were asked to insert carrier wave and to detune to give



The WICEN stand at Moorabbin and District Radio Club "Hamfest". From left Roger Baker, VK3BKR, David Tilson VK3UR, Leigh Baker VK3TP. Photo by Keith Stewart VK3CWT.

Group Captain Garrett a demonstration of heterodyning by a number of AM signals slightly off frequency. However, for the one minute of the demonstration, all that could be heard were a couple of low frequency growls. It appeared that each station had relied on the other fellow to detune his rig. So this one was repeated with stations detuned various amounts up to about 3 kHz. This then resulted in a duplication of the chaos we sometimes hear on Sunday mornings on 7.1.

4. The next demo was to ask all 11 stations other than VK3AC to hold an 11-way QSO, throwing the ball around, as it were. This resulted in a most interesting performance. It was noted that particular voices could be picked out and followed when more than one person was talking.
5. The next demonstration was to show how four stations could carry out two QSOs on upper and lower sideband on the same frequency. It was possible to tune from one sideband to the other and resolve each separate QSO without trace of interference from the suppressed sidebands, which disappeared below a strength five noise level that was prevailing.

Group Captain Garrett replied to the stations concerned and thanked them for their interest in the emergency services. He promised to bring the details of SSB before the special meetings of parliament which were convened to deal with the problems associated with emergency operations.

Later Geoff VK3AC forwarded to Mr Garrett details of the single frequency crystal locked transistorised 4 MHz 10-watt transmitter receiver designed by VK2EN which provides talk power the equivalent of a 60-watt AM transmitter, also upper and lower sideband operation. The suggestion is that one sideband be used for general traffic and the other sideband reserved for the extreme emergency as it may arise.

It should be pointed out that the absence of carrier waves and the provision of only one control — the audio gain control — means that many nets operating in their own districts can operate with a minimum of interference with one another, by turning down the audio level on the SSB rig to a point where reception is satisfactory, and limiting the range of the signals to that required at the particular moment. Many problems have been caused in the past by heterodynes from stations situated many miles away from other networks. SSB and the simple use of the audio gain control will eliminate a lot of these problems.

(Editor's Note: Geoff VK3AC was once VK3GT, and also operated experimental stations VHM and VHO for the Melbourne Herald newspaper in 1930 .... VK3ABP) **ar**

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Equipment Review - The YAESU FT-2400H two metre FM Transceiver

Ron Fisher VK3OM
"Gaalanungah"
Beaconsfield Upper

OVER THE LAST five years or so, the average two metre FM transceiver has decreased in size and weight and at the same time the power output has increased and now averages around 50 watts. As all owners of these transceivers know, all of this adds up to one thing, lots of heat. It's interesting to note that as FM transceivers went from 25 to 50 watts output, the overall size and weight remained much the same. As the overall efficiency remained similar, the heat output just about doubled. Well, maybe the trend is about to change.

Enter the FT-2400H

The new FT-2400H is a 50 watt output two metre transceiver which has reversed this trend. It also offers improvements in other areas as well. But more on this later. It is quite a bit larger and heavier than the FT-212RH. In fact, it could be an interesting exercise to look at how Yaesu two metre transceivers have evolved in size and weight over the last few years. The ten watt output FT227 makes a good starting point. It weighs 2.7 kg and measures 180 x 60 x 220mm and I don't recall ever hearing about overheating problems with this rig. It still performs well and can be an excellent second hand choice for a beginner on two metres. Next was the FT230. Output was now up to 25 watts, the weight halved to 1.3 kg and the size at 150 x 50 x 174mm. Heating was up with the 230, but still not too much of a problem.

Following the FT230 came an interesting but not well known transceiver, the FT270R/RH. The "R" was rated at 25 watts output, and the "RH" at 45 watts output. The important feature of these rigs was the use of a ducted air flow system with a small blower to keep the air moving. As I have never seen one of these, I cannot comment on just how well the idea worked, but it sure looked good on paper. Next in line was the FT211RH again a 45 watt output transceiver.

Weight was 1.5 kg and the overall size 160 x 50 x 175 mm, or, just 10 mm wider and .2 kg up on the 25 watt FT230. With extended transmissions, the FT211 can get very hot but overall it's not too bad.

Next up was the FT-212RH. Rated at 45 watts maximum output, the overall weight was down to 1.25 kg and the size just 140 x 40 x 160 mm. Compared to the earlier 25 watt FT230 it was both lighter and smaller. Heating with the FT-212RH could be a problem at times.

The new FT-2400H in contrast to the earlier models weighs in at 1.5kg and measures 160 x 50 x 180 mm, a step in the right direction at last. Just how this works out in actual use will be revealed later in this review.

Yaesu claim that the FT-2400H is built to professional standards, and is in fact a special version of their premier range of commercial transceivers. Yaesu also state that the FT-2400H is the first two metre amateur transceiver to take full advantage of the military grade mechanical and electronic construction techniques, which was previously reserved for the top of the line professional grade commercial land mobile transceivers. In fact, it is built to meet the USA MIL-STD-810C for shock and vibration. I must state now that I did not try any of these tests on the FT-2400H.

One thing that the FT-2400H does have is simplified operation. Seldom used controls are situated behind a drop down flap on the front panel.

The Yaesu FT-2400H showing the alpha name display facility.

This leaves only five operational push buttons plus squelch, audio volume, tuning control and power on/off visible on the front panel. The LCD is larger than usual and displays a multitude of information, some of which is quite new and most interesting.

While the frequency readout is larger than average, the "S"/power output bargraph is somewhat smaller than average. But as the "S" meter usually reads full scale on most signals, this is not of great importance. At the three transmitter power output settings, the output scale gives a reasonably good comparative reading. The readout also includes an excellent selection of status indications for many transceiver functions.

The FT-2400H Transmitter Tests

For a comparative test on heating, I set up the FT-2400H and an FT-212RH side by side running into dummy loads and keyed the transmitters on and off at the same time to simulate normal operating conditions. The heat sink on the FT-212RH became too hot to handle much quicker than the FT-2400H, and after an hour of operation, the FT-2400H was noticeably cooler that the FT-212RH. The extra size and weight of the FT-2400H does indeed help with cooling.

The FT-2400H on the Air

If you intend to use the FT-2400H as a home station transceiver, you will need a solid power supply that can deliver a maximum output of 12 amps at 13.8 volts. Used as a mobile rig, your normal car electrical system should take care of the power requirements without trouble. Setting up for operation is simple, but a look through the excellent instruction manual is very desirable. The FT-2400H has a capability of storing thirty memories and any one channel can include, frequency, repeater offset or simplex information, CTCSS encode/decode, DTMF status. I started off by loading the memories with several of the local repeater and simplex channels. With this done, one of the interesting features of the FT-2400H can be used. There is a built in option which enables you to give your frequencies a name. Have a look at the photo and you will see what I mean. Once you have entered the frequency and offset, you can proceed to give it a name. In the example shown, the Shepparton repeater on 146.650 MHz has been named SHEP. Touch one button and you can have either the name or the frequency. The actual characters of the display are also somewhat larger than usual although the "readability" is not as good as might be expected. I think that the reason for this is due to each segment of the character being longer than usual but no thicker. Also some of the letter characters use somewhat less than ideal layout. Having said that, I think it is a step in the right direction and I am sure we will see more like this in the future.

The transmitter has three levels of power output, 50, 25, and 5 watts. The two lower powers are adjustable either up or down so that the five watt level can be set as low as .5 watt. Current drain at the normal power settings is 12, 9 and 5 amps. Normal transmit coverage is 144 to 148 MHz but the receiver is tunable from 140 to 174 MHz. The tuning steps are user selectable at 5, 10, 12.5, 15, 20, 25, and 50 kHz. I set the FT-2400H up for 25 kHz steps which fits our band plan and enables quick tuning through the range. Current consumption on receive is around 400 mA.

Our review transceiver was supplied with two microphones, the MH-27a8j which has a DTMF keypad on the front and a MH-26g8j which is the standard up/down scanning type supplied with the unit. The MH-27a8j will be an option which can be purchased separately. The MH-27a8j in addition to the DTMF feature also has a couple of transceiver operating functions on the front. Memory/VFO selection and priority channel selector. A small switch on one side allows the entire key pad to be rear illuminated. Both microphones are connected to the transceiver via an eight pin plastic telephone type jack. Just when I thought we had standardised on the eight pin metal connector albeit with several different connections patterns, here is a new one to battle with. If you intend to use the FT-2400H as a base station and would like to use a desk microphone such as the MD1, then you could be in trouble. I wonder if Yaesu intend to make adaptors available for this?

On-air tests were carried out in two ways. Firstly, I transmitted to a friend and then the transceiver was taken to his location so that I could hear just what it sounded like. We both agreed on the result. Firstly the difference between the two microphones was minimal, but both sounded rather spitty on sibilant sounds. Overall we would rate the transmitted audio as fair only. Deviation was rated as good.

Receiver operation proved to be excellent. Firstly though, it should be stated that two options were not installed in our review transceiver. These are the FTS-17A CTCSS tone unit and the FRC-6 DTMF pager unit. This is unfortunate, as I feel many amateurs could be interested in using these units.

Receiver audio quality is good through the internal speaker and very good through a better quality external speaker. I note that Yaesu offer a new external speaker (the SP-7) as an option, and I look forward to testing this soon.

One of the features of the FT-2400H, as sold in Australia by Dick Smith, will be a special microprocessor customised for the Australian band plans. What this means is that if you activate the automatic repeater shift facility, the transceiver will automatically select the correct repeater offset. This feature can be overridden if so desired.

There are 31 memory channels available and these can be used in a wide variety of ways. I have already mentioned the four character display which can be used in conjunction with the actual frequency display. It is also possible to "tune" away from a memory frequency if required, a most useful feature. The memories also can include repeater offset, CTCSS tone information and can be programmed to set band scanning limits. Channel "one" can be used as a priority frequency which is checked for activity every five seconds. Unfortunately, this will only work with one other channel in use. It is not possible for instance to have the transceiver scanning the memories or in band scan mode and have the priority channel checking feature operating. I must admit that I prefer to be able to scan all channels and still have the priority alert working. Perhaps that's one Yaesu might think of for the next model. The scanning system can only be initiated via the up/down but-

The two microphones as referred to in the text.

tons on the microphone. There is no scan button on the transceiver itself.

Front end performance.

Do you get pager interference? The FT-2400H might be just what you are looking for. The front end performance has been improved in several aspects over the FT-212RH. Firstly, there is more front end selectivity, and this is tunable using information supplied by the CPU. The RF stage is an improved dual gate FET system which has better strong signal handling characteristics. The FT-2400H was set up at a location where pagers were a problem with a certain transceiver. The FT-2400H proved to be a great deal less susceptible to interference than the normal rig. It was estimated that while the FT-2400H was not immune from the trouble, it was at least 20 dB better off than our comparison transceiver. In terms of overall sensitivity, the FT-2400H was a few dB worse than our comparison rig, but still excellent in overall terms.

A feature carried on from the FT-212RH is the automatic lighting intensity of the display and control knobs. This is controlled by a photo sensor on the left hand side of the front panel. In theory, this could be a good idea, but in practice, I find it an annoying feature. Often, putting your hand on one of the controls is enough to shade the sensor and suddenly reduce the light intensity. I would prefer the lighting intensity to be adjustable via one of the front panel controls.

It is unfortunate that our review transceiver was not fitted with the CTCSS and DTMF units. It appears from the instruction book that they are capable of providing some very useful features.

The FT-2400H Instruction Manual

In a word, it's good. Yaesu manuals overall now set the standard. Although not set up in the glossy fashion of the FT1000 or 990, it is very well presented. You might initially get the idea from the coverage of the manual that the FT-2400H is a complicated rig to operate, but nothing could be further from the truth. Most of the basic functions can be mastered very quickly and the instruction book is very easy to follow. The separate circuit is easy to follow, but as is unfortunately the usual thing these days, there is a noticeable lack of technical information. There are however a few pages devoted to basic adjustments such as power output setting and deviation setting. Instructions are also included on the installation of the two optional boards.

The FT-2400H Conclusions

If you are in the market for a top line 50 watt two metre FM transceiver, then the FT-2400H must come high on your shopping list. Being somewhat larger than average, it operates at a more moderate temperature and should have a much longer life. The solid construction will also help in this regard. The larger display could be an advantage, although the smaller than average "S" meter and power output bargraph is a small disadvantage. The variable LCD illumination may or may not be to your liking. The memory naming facility is an interesting feature which is certainly a first for Yaesu. I wonder if this might be carried on to HF equipment. I would think it could be most useful on a HF communications receiver, but perhaps six letters would be better than the four on the FT-2400H.

All in all, a very innovative rig which puts Yaesu right in the front line of VHF transceivers.

Specifications

General

Frequency range: 144-148 MHz, Tx, 140-174 MHz Rx
Channel steps: 5, 10, 12.5, 15, 20, 25 & 50kHz
Frequency stability: ⟨10ppm (−20 to +60 degrees Celsius)
Mode of emission: F3
Antenna impedance: 50 ohms, unbalanced
Supply voltage: 13.8V DC +/− 10%, negative ground
Current consumption (typical): Rx: 400 mA, Tx hi/med/low: 12/9/5A
Operating temperature range: −20 to +60 degrees Celsius
Case size (WHD): 160 x 50 x 180mm (w/o knobs)
Weight: 1.5kg (3.3lb)

Transmitter

Output power (high/med/low): 50/25/5W
Modulation type: variable reactance
Maximum deviation: +/− 5 kHz
Spurious radiation: less than -60dB
Microphone impedance: 2kΩ

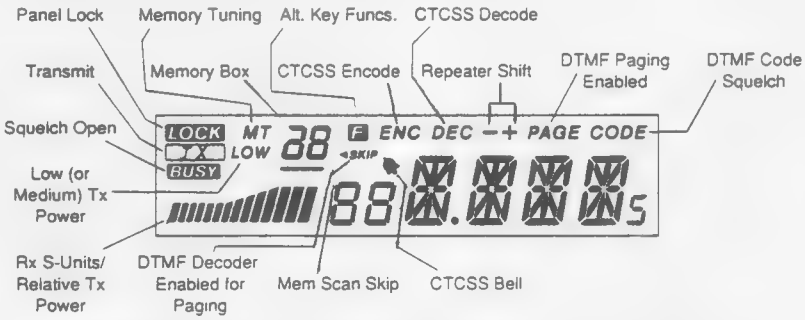
Receiver

Circuit type: double conversion superheterodyne
IFs: 21.4MHz & 455kHz
Sensitivity (for 12dB SINAD): better than 0.2 .μV
Selectivity (-6/-60dB): 12/30 kHz
IF rejection: better than 70 dB
Image rejection: better than 70 dB
Maximum AF output: 2W into 8 ohms @ 10% THD

Specifications subject to change without notice or obligation.

The FT-2400H will retail for $699-00 and will soon be available from most Dick Smith outlets.

Our thanks to Dick Smith Electronics for the loan of our review transceiver. **ar**



The Yaesu FT2400H front panel display as shown in the manual.

PACTOR.....Here and Now

Probably most amateurs will now be familiar with the "chirp-chirp" sound of AMTOR, and possibly also have used that mode. They may also have wondered at the strange slower "chiiiirp-chiiiirp" signals around 14079 kHz. This is the sound of PACTOR.

Roy Philpott DJ0OW.
Wilhelmstraβe 19,
D-7600. Offenburg.
Germany.

USERS OF AMTOR, though enthusiastic over the error correction and ability to communicate over poor radio links, also complain about the slow speed, and under poor conditions, errors that creep into the received text. PACTOR overcomes both these problems, with the additional major advantages of using the full ASCII character set and transmission speed automatically adjusted for the radio link quality.

PACTOR has been developed by a group of German radio amateurs, for amateur radio use within the experimental radio service regulations. It has been designed as an improvement on AMTOR, mainly for use on HF links where signals are weak, fluttery and/or with phase distortion. Under these conditions packet radio will not work at all, and even AMTOR has difficulties.

Great importance has been placed by the designers of PACTOR on the following:-

Error free transmission.
Correct binary code transmission (eg:full ASCII character set.)
Efficient use of channel capacity.
Link maintained even under very weak signal conditions.
Easy and fast to initialise contacts.
Shift direction unimportant. (mark and space definition become redundant)
Simple hardware. (Europacard sized board with Z80 CPU)
Maximum required bandwidth 600 Hz.
Easy monitoring by a third party. (eg:-Post/telecoms or SWL's)
Full compatibility with future system software updates.

As a PACTOR user for the last 8 months, the author can fully endorse that these goals have been well met.

Simple System Description

PACTOR uses basically the AMTOR or SITOR systems of half duplex ARQ with data packets (blocks) that contain the transmitted data, and a short acknowledgement signal that confirms receipt (or lack of) by the receiving station. Blocks or packets of data that are not correctly received by the receiving station are automatically repeated until they are.

AMTOR uses only simple parity checking for its error detection. This means that AMTOR can detect single bit errors. With two (or more) bit errors it is possible that the erroneous bits cause a correct parity and the error would be undetected. PACTOR has a full 16 bit CRC checksum (like packet) for error detection. CRC means Cyclic Redundancy Check, and is a well known means of protecting data integrity used in computer disk drives and packet radio (amongst others). With a CRC it is not only the binary value of the data that is checked, but also its position within the data stream. This makes it virtually impossible for two data values to be swapped without being noticed, and any data corruption is almost certain to be detected. This means the probability of errors is very low. (In practice around $1x10^{-5}$). The transmitter builds the checksum from the data within a packet and sends this number at the end of the data. The receiver makes its own checksum calculation, then compares it with the received number. If the two tally, then everything is fine. If not, then an error has occurred and a repeat is requested.

Its Fast!

PACTOR transmission speed is either 100 or 200 baud depending on link quality, however, together with the builtin Huffman data compression, the actual data throughput can exceed 300 baud. The Huffman coding is designed for text, and is based on the number of times a particular letter occurs in normal language. Those letters appearing most often have the shortest codes, those appearing the least have the longest, and all others are arranged between.

Essential system characteristics are as follows:-

Total cycle time 1.25 sec
Packet time 0.96 sec
Window for control signal reception 0.29 sec
Control signal length 0.12 sec

There remains 170 msec for switching and propagation delays. Like AMTOR this gives a maximum communication distance of approximately 20,000 km.

Long Path ARQ

In the latest software versions (V1.3 or later), this limitation of maximum distance has been improved to approximately 40,000km. This has been achieved by increasing the total cycle time to 1.4 seconds, leaving a much longer window for received signal reception. The transmitting station sends a special "Long Path" control signal during the initial calling phase.

Receiving stations with the latest versions of software then switch automatically to "Long Path mode" with the longer cycle time and acknowledge in the normal way. This system enables ARQ contacts from and to virtually anywhere long or short path. The "Long Path mode" can also of course be used for normal short path contacts, but the total data throughput is slower

(approx 90 percent) than the norm due to the longer cycle time. Stations with the earlier software versions cannot of course acknowledge the "Long Path mode" and do not answer.

Transmitted packets contain a header (for synchronisation/software version) etc, data area (64 bit for 100 baud, 160 bit for 200 baud), status byte (packet counter and system info), CRC 1, CRC 2. To compare, AMTOR has a total of 3 characters (21 bits) data per block.

Total cycle time 450 msecs.
Packet (block) time 210 msecs.
Control signal length 70 msecs.
Window for control signal reception 170 msecs.

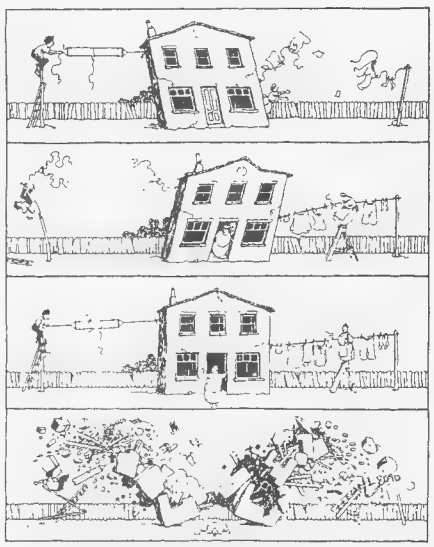
The timing of AMTOR is fixed, and the reception window cannot be lengthened. AMTOR therefore cannot be used for long path ARQ contacts.

Memory ARQ

Under poor signal conditions, AMTOR performs very slowly with errors or not at all. PACTOR however has a system known as Memory ARQ which automatically reconstructs corrupted packets. In a corrupted packet, some of the data is normally correct. The packet is stored, and compared with the repeated data sent perhaps many times when conditions are very poor. Eventually, enough correct data is collected to reconstruct a complete packet. A statistical correlation method is employed, and as the shift direction of the transmitted signal alternates on each transmission, constant errors due to interfering carriers are also cancelled out. This enables a link over circuits with which the author (an ex Merchant Marine Radio Officer) would have trouble having a CW contact. At times, switching on the loudspeaker produced only noise, with hardly a trace of signal to be heard. Despite this, the system produced error free (if slow) copy.

Mailbox

A personal mailbox is built into the PACTOR Controller software. This enables the system to be left running and at any convenient time the mail read, without tying up valuable computer time. It is planned, that in the next software release, this personal mailbox will be available for both AMTOR and PACTOR users. At present it is only for PACTOR. It has around 21K of battery backed RAM and can contain up to 31 entries.



DJ Ø OW G 3 VCH
VP 9 HX/mm

PACTOR, AMTOR and RTTY

When in the PACTOR standby mode, the software will automatically check for any AMTOR ARQ calls to the system and switch automatically to AMTOR and acknowledge in the normal way. After the AMTOR contact is finished, it will then revert back to PACTOR standby. AMTOR FEC transmissions will also be read (if required) in the PACTOR standby condition. The software also contains "steam" RTTY, which due to the system of demodulation employed also perform generally better than on many other systems. Instead of using active filters and a limiter and discriminator to extract, mark and space information, the PACTOR Controller uses an analogue to digital converter to convert the rectified and smoothed tones into digital information. The microprocessor can use this to decide what is a mark and what is a space.

This means that information lost in the normal chopping of the signal is retained. This information is required in order that the PACTOR Memory ARQ system can correctly store and rebuild corrupted data. The PACTOR Controller also uses a computer controlled switched capacitor filter to optimise the bandwidth for either 100 or 200 baud operation.

Status Request

The data from the PACTOR Controller can (on request of the computer), contain a status byte. This contains information on the present condition of the link and the controller and is updated in real time. It uses a system similar to the AMT-1, AMT-2 and AMT-3 AMTOR controllers, and can be used to control a fully fledged BBS. Data flow between the PACTOR Controller and the computer uses the well known X-on X-off RS232 protocol.

A full technical description of the system would be outside the scope of this short article which serves only to introduce this exciting new mode.

Details of the PACTOR Controller are available from Dr Thomas Rink DL2FAK, and a handbook (in English) is also available. Please enclose a SAE with any inquiry.

Other literature describing PACTOR are:-

Hans-Peter Helfert, DL6MAA and Ulrich Strate, DK4KV.
PACTOR-Funkfernschreiben mit Memory ARQ und Datenkompression. CQ-DL 11/90

Martin Clas, DL1ZAM and Peter Mack, DL3FCJ.
PTC der PACTOR-Controller. CQ-DL 7/91

PACTOR a short system description. RTTY-Journal, Volume 40, Number 6, July/August 1991

PACTOR controllers, software and further details are also available in Australia from BLAMAC Computer Services, 26B Bombala Street, Cooma NSW 2630 Tel (064) 52 3112.

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Random Radiators

Ron Cook VK3AFW
Ron Fisher VK3OM

TO START OFF this month, a few thankyous to readers who have sent in material for use in this column.

Firstly, thanks to Gerry McCulloch VK2BMZ who is a temporary resident in Japan. Gerry has sent us a most interesting antenna book published by the Japanese CQ magazine. The title is "Verandah Antennas" so, as you might guess, it describes dozens of methods of setting up an antenna farm on the balcony of a flat or home unit. Over the next several months, we might try to reproduce some of their ideas in Random Radiators. Again, many thanks Gerry.

It seems the TH3JR is forever a favourite. Just when we thought we had sorted it out, Mr A Topp VK2AXT has sent some most interesting information, including a copy of the Hy-Gain Beam Antenna Trouble Shooting Guide, which is something new to us. As this guide runs to 16 pages, it's not possible to reproduce in this column in one hit. However, we might publish a few useful sections from it over the next several months.

Anyhow, for the final word on the TH3JR, it's over to VK2AXT.

The TH3JR Saga

"After studying the articles in AR Feb 1988, April and Oct 1992, and the data supplied by Telex Hy-Gain, getting my beam back to optimum performance seemed a pipe dream.

The frequencies obtained with my director and radiator 10 and 15m traps are close to those given by VK3CO Feb 1988 "AR", so if these trap figures give good beam performance, they will be left as is.

The trap frequencies given by Telex Hy-Gain are very much lower as listed below:

Director	10m trap resonance	23.4 MHz
	15m trap resonance	17.7 MHz
Radiator	10m trap resonance	23.3 MHz
	15m trap resonance	18.0 MHz
Reflector	10m trap resonance	22.8 MHz
	15m trap resonance	17.7 MHz

All frequencies are + or — 25 kHz.

Prior to receiving the beam at my QTH, it had had a rough life. When repairs were carried out and the beam put into operation all was not as expected. It appears that the director and radiator were reasonably effective, but doubts existed about the reflector.

As the reflector traps were about 6MHz high, the worst one, a 15MHz trap, as a trial was rewound, the frequency checked at 18.3MHz with the outer sleeve at maximum capacitance, the frequency being more than 500kHz above those quoted by Telex Hy-Gain. All reflector traps have been rewound and will be given a trial.

As a comparison, my 14AVQ vertical traps were checked and found to be spot-on the frequencies quoted by Telex Hy-Gain.

The technical description of the Beta match ("the hairpin match") is covered in QST April 1962, page 11, and the balun used is homebrew from data in AR Dec 1982, page 31.

Hope what has been done will improve my beam performance."

Thanks to VK2AXT for all of that. With all the information we have published over the past few months on the TH3JR, you should have yours working right up to top performance.

On another subject, I found a most interesting rundown on ATUs. Called Dos and Don'ts with ATUs, originally published in CQ for April 1989, but very well summarised by Pat Hawker G3VA in his popular Technical Topics in the RSGB magazine Radio Communication. While we don't agree 100 per cent with all that is said, it at least is a good starting point if you are considering the purchase of an ATU. Over to G3VA.

"Do's and Dont's with ATUs

Practically since the beginning of amateur radio, various forms of antenna tuners have come and gone, along with various opinions as to their value in a station installation. The following notes are a brief digest of my main findings.

1) Don't use an ATU to disguise a poorly dimensioned or improperly constructed antenna. (In other words, if a conventional dipole or other antenna which should provide a good match to the transmitter results in an excessive SWR, find out why rather than using an ATU to overcome the problem — G3VA).
2) Don't waste power in an ATU by using a short random length of wire as an antenna if this can be avoided. The shorter the length of the antenna wire, the greater the proportion of output power that will be dissipated in the ATU. It is better to get out more wire, even if it has all sorts of twists and turns, than to use a very short (in terms of wavelength) length of antenna wire.
3) Do be kind to your ATU when using a (voltage-fed) random length of wire about a half-wave or multiple thereof in length antenna. Avoid arc-overs by increasing capacity/component ratings or increase the length of the antenna to provide current feed.
4) Do use a good ground (earth) with an ATU even if the antenna itself does not work against ground.
5) Don't rely on an ATU alone to provide harmonic attenuation. The amount of attenuation provided by an ATU can vary enormously from band to band, with the ATU providing insignificant attenuation with some antenna loads.
6) Do be aware that some ATU networks can show false resonances. Obtaining a near unity SWR does not necessarily mean that all the

power is going to the antenna. Occasionally it may indicate that much of the power is being "dumped" into the ATU coil. In general, tuner settings should be such that the minimum amount of inductance is used that permits the system to tune-up properly. "Dumping" can often be detected by the coil running warm — a sure sign that power is being wasted.

7) Don't expect too much from "automatic antenna tuners" which are meant to cope with only moderate SWRs (1:3 or, at most 1:5) as may be encountered at band edges with a beam array or sometimes with a dipole: "if such tuners are grossly mistreated, their components can readily arc over or burn up. Just by the nature of their compact size, the components used in such tuners cannot be "jumbo" size."

While on the subject of ATUs, you might remember our reference several months ago to a single coil "Z" match. Well, a prototype has been built and is undergoing tests at the moment. Keep tuned. At the moment it looks most promising.

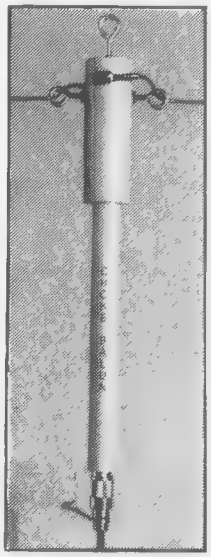
A Balun for the G5RV

The G5RV just won't go away. As an antenna it is attractive from the point of view of being simple to build and is a little shorter than its rival, the trapped dipole.

Bill, VK6BIL, writes to let us know of a balun designed to give a balanced match to the antenna. This is what he has to say.

"In the original article it was suggested that a balun be used at the point of connection of the coax to the matching section, but in the update it was mentioned that a balun was not found to be necessary due to reasonably good balance without one on all bands except 10 metres. The other point made was "that if a balun is connected to a reactive load with an SWR of 2:1, its internal losses increase. The result is heating of the windings and saturation of the core, if one is used. In extreme cases, with relatively high power operation, the heat generated in the device can cause it to burn out". This is all true, of course.

After extensive use of G5RV antennas, both full size and half size in a location of "normal surroundings", ie



A BALUN suitable for the G5RV

surrounded by other properties, trees etc, current balance was measured in the antennas and found to be very much unbalanced in the case of one end of the antenna being in the clear and the other in close proximity to a tree or building.

It is in this situation a balun is needed, but if a normal transformer wound balun is used at the end of the balanced matching section, as mentioned above, problems will occur as described; but, not only that, even if they did not arise, there would still be a problem due to the transformer wound balun which is a voltage balun and produces equal voltages at its output terminals. The current is what needs to be balanced, as it is important to have equal currents flowing in that matching section as it's part of the feedline and not the antenna proper, as a lot of people seem to think.

Without getting into a lengthy technical explanation of feedline mechanics I will explain only that in the matching section of the feedline the currents flowing are in opposite directions but should be of equal amplitude, the results being they cancel and no signal is radiated from the feedline. When the currents become unequal you then have your feedline radiating as well as the antenna. This is a situation to be avoided. As well as the feeder radiating, RF can flow back down the outer of the coaxial braid and cause all sorts of problems in the shack as well as in other surroundings. A properly balanced antenna can have benefits on receive also by reducing general noise and TV timebase QRM.

Going back to the imbalance experienced on our G5RVs, it was mentioned in the update on this antenna that "under certain conditions a current may flow on the outside of the coaxial outer conductor. This is because of inherent unbalanced-to-balanced effect caused by the direct connection of a coaxial feeder to the base of the (balanced) matching section, or to pickup of energy radiated by the antenna. So it was suggested in the update article that an RF choke be made up by coiling a few turns of coax at the junction of the matching section, which is a well known way of trying to prevent unwanted current flow back down the outer of the braid.

Our tests have proved fairly reasonable effectiveness of the coax cable type of choke at the higher frequencies, but at lower frequencies the large number of turns required to do an effective job are rather a lot, and if the bottom end of the matching section is not able to be supported, then the size and weight of the choke will be totally impractical.

We can perform the same task using a ferrite sleeved "choke balun" and it will do the job more effectively; it is small and light in weight.

First of all it is a "current" balun, which means at the point where it is connected to the matching section it will force equal amounts of current into the matching section regardless of asymmetry, therefore the matching line will not radiate due to imbalance, and equal currents will appear at the antenna proper. TVI/BCI problems can be reduced as well.

Secondly, because this balun is not a transformer type wound on a rod or toroidal core, in spite of a high SWR on the feedline on most bands, there is no core to heat up and saturate or break down due to overheating during high power operation. The ferrite sleeve in this unit is acting only on the coaxial braid outer, so regardless of the reactance and high SWR on the inner conductor and braid inner of the case, the performance and balancing action are not affected.

Thirdly, the RF choking performance, reducing or prohibiting the flow back to the shack of current on the coax is better than a coiled-up ca-

ble choke, and only a fraction of the weight.

Just one other point to remember: if your feeder itself, or the matching section, comes away from the antenna at an angle which brings it within the radiation field of the antenna itself, it may be necessary to put a choke inside the shack, in the coax line before it is connected to the ATU. If so, we can supply a choke for this purpose with a SO239 on one end and PL259 on the other. So, if you experience RF in the shack, this is the cure.

After many months of experimenting with both full size and half size G5RV antennas, and bending the top at various points and angles, the proof of effectiveness of the ferrite sleeved "choke balun" has been conclusive. It's no gimmick, but a simple unit that balances the current effectively and stops RF coming back down the coax line into the shack.

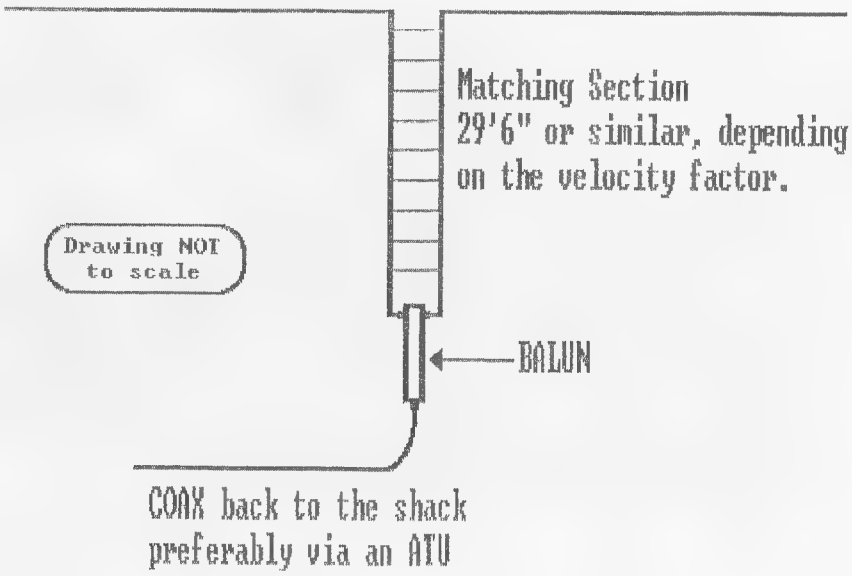
Finally, if your full-size G5RV is used on 160m with strapped feeders and tuned against earth, or your half-size one is used the same way on 80m and 160m, the fitting of the "choke balun" will not affect the operation of the system at all; it will tune up just the same.

The choke balun is housed in a UPVC tube and is .85" in diameter and 12" long. There is a SO239 connector at the base, and it has terminal connectors for making up to the open wire line or ribbon etc, whichever you use for the matching section, and a hang-up hook is fitted at the top to enable the balun to be tied to the matching section. The whole unit is sealed and filled with the highest quality potting compound.

Specifications

Frequency coverage: 1.7-30MHz
Input impedance: 50 ohms
Input connector: SO239 mil spec
Insertion loss: 0.01dB
Power handling: 2kW+
Weight: 8.5oz/240 grams

The thing to stress is that this choke balun is a true "current balun" and will perform two tasks on the G5RV. Firstly, it works as a balun and forces equal currents into the matching section and consequently into the antenna proper. Secondly, it works as a choke and stops any RF coming back down the coax outer to cause problems in the shack. The same or similar effect can be obtained by winding a choke using coax, but I have found the number of turns required to be effective at 7 and 3.5 are so great that it becomes impractical. The choke balun unit is so small and fairly light in weight that it is far more practical and more effective on the lower bands."



Full or half size G5RV Antenna

It appears that Bill intends to supply the balun to VK amateurs so enquiries should be directed to him. If a balun becomes available we would like to test it on our own G5RV and publish our findings.

Now a note for the experimenter. It appears that the balun is of simple construction, consisting of between 20 and 50 toroidal cores slipped over a piece of RG213 coax. After fitting a terminal block at one end of the coax and an SO239 line socket at the other, a covering of heat-shrink tubing completes the construction. The number of cores used depends on the lowest frequency to be used and the characteristics of the cores.

The coax forms a one turn coil through each core and the assembly should have an inductive reactance of the order of 500 ohms, or more, at the lowest frequency of operation. While details of the core type are not known, we have been told that two regular advertisers in this journal, Truscotts Electronic World and Stewart Electronics can supply suitable cores.

The cores need to be big enough internally to slip over the coax and should have reasonable permeability and modest losses over the frequency range of operation. When we obtain further details they will be published in this journal.

The claim, that the choke will not affect operation at half the design frequency, if used with the feedline strapped and loaded against earth, seems a bit shaky. The balun will, we think, provide some inductive loading and may actually improve the efficiency of the system.

Don't buy stolen equipment — check the serial number against the WIA stolen equipment register first.

DICK SMITH ELECTRONICS

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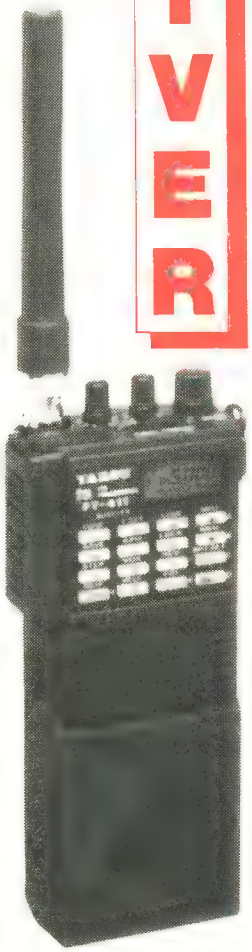

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Superb performance on the 2m band. Top of the line features, reliability and value-for-money from the name you can trust...Yaesu. Only the compact FT-411E offers these features as standard:

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The FT-747GX is a compact SSB/CW/AM and optional FM transceiver providing 100 watts PEP output on all 1.8-30MHz amateur bands, and general-coverage reception from 100kHz to 30MHz. Convenient features include a front panel mounted speaker and an easy-to-read backlit digital display, dual operator-selectable tuning steps for each mode, dual VFO's for split-frequency operation and 20 memory channels (eighteen of which can store split Tx/Rx frequencies). Wideband 6kHz AM and narrow 500Hz CW IF filters are also a standard feature. Complete with Yaesu MH-1 hand microphone.
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FT-757GXII ALL-MODE HF TRANSCEIVER

We've got a limited number of ex-demonstration FT-757GXII transceivers, complete with a hand microphone and 2 year warranty, to clear at our best ever price! These rugged transceivers provide 100W RF output, extended receiver coverage and a heavy-duty diecast heatsink/top-panel for long term reliability. But hurry, stocks are strictly limited.

Features:

- All-mode operation - SSB, CW, AM, FM (160m-10m)
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- Dual VFO's with VFO/memory swap functions
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Cat D-3492

Some units may be slightly shop-soiled.
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FT-650 6m, 10m, 12m 100W TRANSCEIVER

Now's the time to enjoy the summer DX season on the 6m and 10m bands, and the Yaesu FT-650 mobile transceiver allows you to do it in style. It's all-mode operation, 100W RF output (SSB, FM, CW) and continuous receiver coverage of the 24.5 to 56MHz range allows you to work stations as soon as the band opens. The use of 3DDS's and a 2-stage low noise RF pre-amp results in a very quiet and sensitive receiver (SSB/CW, 0.125uV) so you'll hear weak signals more easily than ever before. To cater for the FM enthusiast, the FT-650 provides repeater offsets, an FM narrow mode as well as exceptional 0.16uV (12dB Sinad) sensitivity. Other features include selectable tuning steps, manual/auto IF notch filter, RF speech processor, IF shift control, 105 scannable memories and an effective noise blanker. Includes MH-1 hand microphone.

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FT-990 H.F. ALL-MODE TRANSCEIVER

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The FT-990 offers many of the advanced features of the legendary FT-1000, yet in a more compact and economical base-station package. It's excellent front-panel layout, together with clear labelling, a large back-lit meter and an uncluttered digital display provides very straightforward operation. The receiver performance is excellent, with a very wide dynamic range front-end circuit and two DDS's providing a very low noise level and excellent sensitivity over the 100kHz to 30MHz range. Transmitter output is 100W on all HF Amateur bands (SSB, CW, FM) with the internal AC power supply allowing high duty cycle transmissions. An internal auto antenna tuner with 39 memories is a standard feature, while the customizable RF speech processor and Digital Audio filtering facilities are unique to the FT-990. Other features include IF Shift and IF Notch, IF bandwidth selection, an effective adjustable notch filter, 500Hz B/W CW filter, 90 memories and one-touch band selection. Microphone optional extra.

2 Year Warranty

AC version FT-990	Cat D-3260	$3495
DC version FT-990	Cat D-3255	$3195

BOOK REVIEW

Kenwood Communications Technical Manual

Ron Fisher VK3OM

JUST HAPPENED to spot this at Stewarts Electronic Components the other day. It looks like a typical Kenwood instruction manual but, as they say, you cannot judge a book by its cover. It's actually a complete technical run-down on just how a modern transceiver works.

Naturally it's based on Kenwood equipment with plenty of references to well known transceivers.

There are 10 sections in the book, and a quick run through them will give you an idea of the scope of the information covered. Section one is a background to the ideas that initiated the book. Section two covers the design philosophy of the receiver section of a modern transceiver. It also gives examples of how these circuits were developed from some of the earlier Kenwood transceivers.

Section three describes circuits used in transceivers, including such things as auto antenna tuners, linear amplifiers and speech processors.

Section four goes into digital circuits, and section five follows up with microcomputer circuits. Section six is called Applied Technology, and talks about RTTY, Baudot and ASCII code, shift/width controls, frequency readout and AMTOR and packet communication.

Section seven is devoted to measurement methods and performance evaluation, divided into three sections. Firstly, carrier to noise ratio measurements are described. Second, dynamic range and intercept point are explained and, finally, reciprocal mixing measurements are described.

Section eight is on anti-static electricity. "What's that?" You might well ask. Semi-conductors are divided into three sections according to their susceptibility to static electricity. Then methods on preventing static electricity are discussed. The final section, part nine, contains a selection of useful data which includes charts showing VSWR as a function of forward and reflected power, conversion between dBm level and μvolts output from a signal generator, plus much more.

From this you can see that all parameters of transceiver operation are covered. Well, almost! One very conspicuous omission is any mention of intermodulation distortion measurement in linear amplifiers. Strange, to say the least. However, I would still recommend this book to all those interested in the technical aspects of modern communication equipment. Hopefully it will soon be available from your local Divisional book shop.

10 Gigahertz Record Broken

Max Chadwick VK3WAD testing equipment in readiness for the epic making 10 GHz ATV transmission.

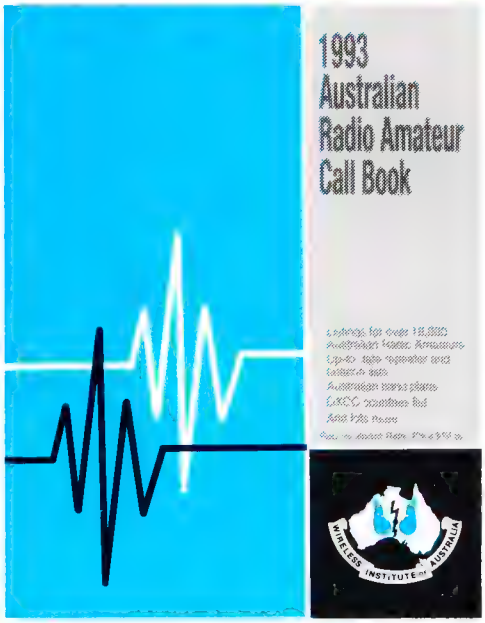
ON FRIDAY 23rd October 1992, a small group of Melbourne amateurs transmitting 30 milliwatts (yes, milliwatts !!) of ATV, were successful in breaking the 10 Gigahertz distance record. The distance was 63.4 km.

Why does one attempt such feats?

"Because it is there.". a quotation from Sir Edmund Hillary when asked why he climbed Mount Everest in 1953. Such is the spirit encompassed by this group in their pursuit of something different. For some time, the group has been experimenting, testing and rebuilding in an effort to enhance their knowledge of little known parts of the spectrum available. Contacts with others using electromagnetic waves of various frequencies is a common goal, with the ability to establish this over ever increasing distances adding an extra challenge.

The previous paragraph is the introduction to an excellent article written by Peter Ford VK3TAF. Next month, we will bring our readers Peter's descriptive and interesting article, together with photographs of the group's activities.

IDEAL CHRISTMAS PRESENT
1993 Australian Call Book



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FT-890

COMPACT HIGH PERFORMANCE HF TRANSCEIVER

YAESU

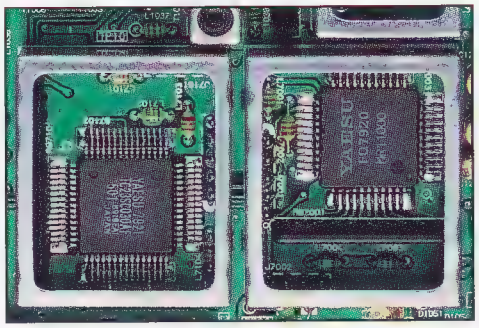
6 LOOKS LIKE THE FT-757GX

Every now and then a truly remarkable innovation takes place.... and you know immediately, that a legend is born! There's little doubt that the sensational new FT-890 HF Mobile Transceiver is just such a legend. Yaesu have incorporated many of the features from their renowned base-stations into this very compact mobile, so much so that we like to think of it as 'the FT-990 of mobile rigs'. Just like the FT-990, the new FT-890 continues Yaesu's design goals of making technically superior, feature packed transceivers that are fun to use and yet very reasonably priced. Compare the FT-890 with the rig you're using now!

Clean Transceiver Operation

The FT-890 uses the very latest Direct Digital Synthesis (DDS) technology to provide much higher purity local oscillator signals than traditional PLL designs. The two DDS's ensure exceptionally low noise transmitter output, improved receiver performance and the very fast transmit/receive times needed for digital modes like packet radio. Together with the magnetic rotary encoder used by the main tuning dial, the DDS's provide the feeling of the best analogue VFO's... but with all the advantages of digital control.

* By Neil Duncan, ARA Volume 15 no. 4



Exceptional Receiver Performance

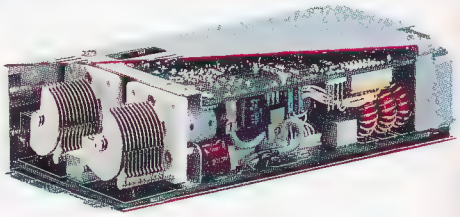
The FT-890's triple conversion receiver covers the entire 100kHz to 30MHz range with high sensitivity and a wide dynamic range. For clearer reception of weak signals, the receiver uses a low noise dual FET RF amplifier followed by an active quad FET mixer with a high first IF of 70MHz. All this ensures excellent image rejection and, together with the use of DDS local signals, results in receiver performance that is noticeably superior to previous designs.

Flexible Transmitter Operation

Yaesu's innovative die-cast top panel heatsink and duct-flow cooling allow high duty-cycle transmissions with up to 100 watts output in SSB, CW and FM modes, or 25 watts carrier on AM. For the easiest operation the transceiver offers VOX, an iambic CW keyer, full/semi break-in CW, an inbuilt SWR meter and an all-mode RF power output control. What's more, an RF based speech processor lets you tailor transmitter audio to your voice/microphone combination for greatly improved SSB talk-power.

Automatic Antenna Tuner

An enormous bonus for the mobile HF enthusiast is the optional automatic antenna tuner (ATU-2) which is internally mounted and operated from the front panel. The ATU-2 uses its own microprocessor and 31 memories to automatically store tuner settings for exceptionally fast recall when you change frequency.



Interference Rejection Facilities

For better reception under crowded band conditions the FT-890 provides both IF Shift and IF Notch controls.... and you can install optional filters for enhanced SSB skirt selectivity, as well as a choice of optional 250Hz or 500Hz bandwidth CW filters. Other valuable features include an effective variable noise blanker and a direct-feed mixer button for clear copy of even very strong signals.

Frequency Control

With a 16-bit main processor and four co-processors frequency control is incredibly simple. Two independent VFO's per band hold their own frequencies and modes, while 32 tuneable memories store all of the data for both VFO's. Split frequency operation as well as memory/VFO transfers are a breeze.

Inc Sm

The F ideally opera measu uses comp and overh install ensur duty array flexibi

Tec

This incorp simply range.

- The oper All o 10m!
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FT-890

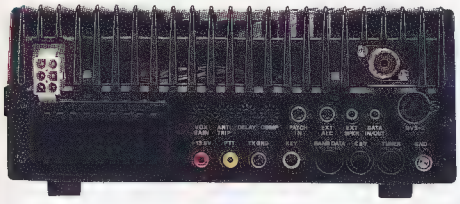
COMPACT HIGH PERFORMANCE HF TRANSCEIVER

YAESU

X GOES LIKE THE FT-990*

Incredibly Small & Light

The FT-890 is incredibly small and rugged, so it's ideally suited to both mobile and base station operation. Weighing in at under 6kg and measuring just 238(W) x 93(h) x 243(d)mm, it uses quality epoxy PCBs and surface mount components for high efficiency, superb reliability and serviceability. What's more, there's no overhanging rear heatsink to hinder mobile installation and the duct-flow cooling system ensures the FT-890 runs cool, even with high duty cycle transmissions. A comprehensive array of rear panel connections gives added flexibility for base-station operation.



Technically Advanced

This outstanding mobile HF transceiver incorporates a host of standard features which are simply not available on most other rigs in this price range. Take a look.....

- The optional internal automatic antenna tuner operates on all HF amateur bands.... even 160m. All of the rivals internal ATU's only cover 80 to 10m! So, why limit your operations?
- Unlike the inferior audio-based processors used on some competing models, the FT-890 uses RF-based speech processing because it's recognised as the most effective. In tough conditions Yaesu's unique frequency shifting RF processor will provide more punch to get your signal through.
- The audio-based notch filters used by some of it's competitors can suffer from AGC lock-up. The FT-890 took the smart approach by using an IF-based notch filter to effectively reduce interfering carriers without being affected by AGC lock-up, even when notching strong signals.
- Wouldn't you like to have noise blanker performance that's referred to as 'the best in the mobile business' (ARA Vol.15 No4). Only Yaesu has it!
- Yaesu transceivers are covered by a 2 year warranty.... Why accept anything less?

A delight to use and an outstanding mobile rig by any standards. The sensational new FT-890 mobile HF transceiver is packed with features and offers performance and flexibility that until now was unheard of at this price.

Cat D-3270

Stock due early November, so place your order now to avoid disappointment.

YAESU

$1995

OPTIONAL ACCESSORIES:

a) ATU-2 Automatic antenna tuner — An easily installed internal auto tuner designed for coax feedlines. Operation is controlled from the FT-890 front panel and the tuner can match impedances up to about 3:1 with the transmitter.

Cat D-3272 $469

b) SP-6 External speaker with filters — A deluxe desktop speaker with 12 selectable audio filtering combinations and input terminals for two rigs. A large loudspeaker and audio filtered headphone socket will enhance the sound reproduction of most transceivers.

Cat D-3265 $249

c) DVS-2 Digital voice recorder — The DVS-2 electronically stores audio either as a continuous receiver recorder or as a microphone audio recording for on-air playback. Excellent for voice contesting!

Cat D-3220 $299

d) Filter options — A range of FT-890 crystal filters for enhanced CW and SSB operation are available from our Sydney Service Centre.

DICK SMITH ELECTRONICS

B1371

DIAMOND VHF/UHF BASE STATION ANTENNAS

These high quality, vertically-polarised base station antennas are ideal for the discerning Amateur operating on the 2m or 23cm bands. They're beautifully constructed 'Diamond' brand antennas from Japan that provide high gain plus a low radiation angle for maximum range. Constructed from robust F.R.P.(fibreglass reinforced polyester) tubing for excellent all-weather operation, with compact ground-plane radials for a clean radiation pattern. Complete with stainless steel mounting hardware.

2m ANTENNA F-23A

Frequency:	144 - 148MHz
Gain:	7.8dB
Max. Power:	200W
Max. Wind Speed:	144km/h
Length:	4.53m
Type:	3 x 5/8 λco-linear
Connector:	SO-239

Cat D-4850 **$199**

23cm ANTENNA F-1230A

Frequency:	1260 - 1300MHz
Gain:	13.5dBi
Max. Power:	100W
Max. Wind Speed:	144km/h
Length:	3.06m
Type:	25 x 1/2 λco-linear

Cat D-4870 **$299**

Limited Stocks!

DIAMOND D-130J DISCONE ANTENNA

This quality Japanese discone antenna covers the frequency range 25-1300MHz and is easy to assemble and install. With extensive aluminium and stainless steel construction it's extremely durable, while allowing transmission on the 6m, 2m 70cm and 23cm bands with a maximum power rating of 200W PEP. Complete with mast mounting hardware, stainless steel U-bolts and instructions.

Cat D-4840

Now Only $149

HUSTLER RX-2 2m 5/8 WAVE MOBILE

Here's value! A quality American 2m 5/8 wave magnetic mount antenna for mobile or temporary base station use. Comes complete with 4.5m of coax cable with a PL259 attached. It provides 3dB gain with a power rating of 100W maximum and uses a flexible stainless steel whip to minimise wind loading.

Cat D-4805 **$49.95**

HUSTLER 1/4 WAVE MAGNETIC ANTENNA

A great idea for extending the range of handheld transceivers! The Hustler UGM is a compact 1/4 wave magnetic mount mobile antenna supplied with 2.1m of mini coax fitted with a BNC plug. Simply use the supplied frequency chart to cut the flexible stainless steel whip to the required length for your application (within the 140-500MHz range) and it's ready to use.

Cat D-4802 **$39.95**

REVEX SWR/ PWR METERS

Revex meters feature quality Japanese construction, large meter movements and low-loss wideband SWR/PWR sensors. We carry 2 of their popular models, the W502 and the W540, each of which provide 3 power reading scales plus SWR measurement, but with differing frequency coverage.

Hurry, buy now and beat the price rise!

W502 HF/6m METER

Covers 1.8 - 60MHz and has an accurate P.E.P metering circuit. As well, it has 20W, 200W and 2kW scales and a backlit meter. Requires 13.8V DC.

Cat D-1360 **$199**

W540 VHF/UHF METER

Covers 140 - 525MHz and has an average-reading metering circuit. It has 4W, 20W and 200W scales. Requires no DC power.

Cat D-1370 **$179**

HF 5-BAND TRAP VERTICAL ANTENNA

The tradition continues! The 5BTV is yet another masterpiece from the people who have been making antennas for over 33 years. This rugged 5 band HF trap vertical uses Hustler's exclusive trap design (25mm solid fibreglass formers, high-tolerance trap covers and low loss windings), for accurate trap resonance with 1kw(PEP) power handling. Wideband coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, less than 2:1 SWR at band edges), with 80kHz bandwidth typical on 80m at less then 2:1 SWR. An optional 30m resonator kit can also be installed without affecting operation of the other bands.

High strength aluminium tubing and a 4mm (wall thickness) extra heavy-duty base section provides optimum mechanical stability. What's more, stainless steel clamps and hardware guarantee a longer life. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike other antenna designs the 5BTV can be fed with any length of 50 ohm coax cable.

Cat D-4920

Hurry, buy now and beat the price rise! **$299**

30m RESONATOR KIT

Adds 30m coverage and includes all hardware. **$79.95**

Cat D-4921

VRK-1 RADIAL KIT

Provides a ground-plane for above ground antenna mounting positions. **$59.95**

Cat D-4922

2m 1/2 WAVE BASE STATION ANTENNA

An outstanding value-for-money, compact, Australian-made base station antenna which is only 1.69m long. It uses a single section F.R.P. radome for excellent all-weather operation and covers 144-148MHz with less than 1.5:1 SWR. The antenna provides approximately 3dB gain with a maximum power handling of 200W FM. It's fitted with an SO-239 socket mounted into the base for easy coax connection.

Cat D-4820

MOBILE ONE **5 Year Warranty** **$49.95**

For Mail Orders, information or a brochure phone DS XPRESS on Sydney (02) 888 2105 or outside Sydney (free call) 008 22 6610.

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ALARA

Robyn Gladwin VK3ENX Box 438 Chelsea 3196 VK3ENX@VK3YZW

The Over 30 Club

Recently, a list of ALARA members who have held their licences for more than 30 years came to light. They must have seen many changes over the years, for better or worse, in the radios, test equipment and the people who use them. One lady in the group has had her licence for 62 years and another for 53 years. Maybe not everyone is on the list and it would be appreciated if readers could supply any additions. The Club includes Australian members Austine VK3YL, Mavis VK3KS, Joyce VK2MJ and Denise VK5YL, and DX members Karla WA1UVJ, Phyllis W2GLB/7, Jerrie K6INK, Joan KD7YB, Ann K9RXK and Raija SM0HNV.

YLs on Packet

As more ALARA members are starting to use packet radio, Margaret Schwerin VK4AOE has suggested that a list of ALARA packeteers be compiled. ALARA subscription renewal forms will now include space for a packet address but, if a more direct approach is preferred, Margaret's address is VK4AOE@VK4CXX.BNE.QLD.AUS.OC.

Sharon Feerick VK4SW@VK4CAB.QLD.AUS.OC. would like to make contact via packet with any amateur in Bury, Heywood or Rochdale in Lancashire, England.

The G1VEQ Field Day portable antennas for VHF and UHF.

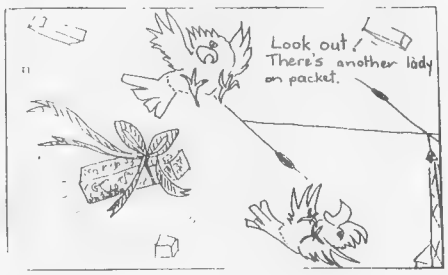
Left 23cm and 13cm on tower, Right 70cm, Field Day DX.

Many thanks again to Dorothy Bishop VK2DDB@VK2XY.SYD.NSW.AUS.OC. for a cartoonist's view of YLs and packet radio.

DX on VHF and above in England.

ALARA DX member, Joanna Sims G1VEQ and OM Russ G4CVX belong to the Flight Refuelling Amateur Radio Society which has over 100 members. Joanna is pictured with children Rosemary and Elizabeth.

The masts they put up on the south coast of England for field days are quite something.



Castlemaine Alarameet 1-2-3 October, 1993

Preparations are well under way for next year's event. Already, 24 ALARA members, 18 OMs and 4 harmonics have registered. There are 4 coming from New Zealand and hopefully this number will be added to in due course. A creche will be arranged for AM Saturday to enable everyone to participate fully in the activities.

Further information may be obtained from Margaret Loft VK3DML QTHR or by packet to Meg Box VK5AOV@VK5WI.ADL.SA.AUS.OC.

Best wishes for a safe and happy Festive Season.

33

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This rotating World Map Clock gives times in 30 colour differentiated time zones. $82 + P&P.

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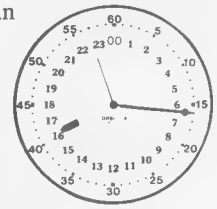
24-Hour clocks can be confused with 12-Hour clocks. But NOT THIS ONE! $60 + P&P



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Packet: VK3JT@VK3BBS

National co-ordinator
Graham Ratcliff VK5AGR
Packet: VK5AGR@VK5WI
Please take note of the AMSAT information nets:

AMSAT Australia net:
Control station VK5AGR
Check-ins commence at 0945z on Sunday nights
Bulletin commences at 1000z

Frequencies:
Primary 7.064 MHz plus/minus 5 kHz.
Secondary 3.685 MHz.
AMSAT South West Pacific net:
2200z Saturday on 14.282 MHz.

Experienced satellite users and newcomers alike are welcome on the nets. A large body of experience is on hand to answer queries. Listen to the WIA divisional broadcasts for regular up to date AMSAT information.

AMSAT Australia newsletter and software service:
Satellite users whether experienced or newcomers will benefit by subscribing to the AMSAT Australia newsletter and soft-ware service. The newsletter is published monthly by Graham VK5AGR. Subscription is $25 for Australia, $30 for New Zealand and $35 for other countries by AIR MAIL. It is payable to AMSAT Aust. addressed as follows:
AMSAT Australia
GPO Box 2141
Adelaide SA 5001

The newsletter provides up to date information on all current and planned amateur radio satellite activities. Graham also provides a first class soft-ware service for satellite users. New soft-ware is reviewed regularly in the newsletter.

Oscar-10 is providing some very good contacts late in the passes. The transponder is still turning itself off at odd times but when it's on the signals are quite good with only a few watts of up link power required at MA 180 to perigee. Activity is sparse but some of the old regulars are returning and it will probably pick up over the summer period. The beacon is sometimes on when the transponder is off and vice versa so don't be fooled, check the pass band and up-link a signal. Signals have been so good recently that the pass-band noise is clearly audible when the transponder is on.

Oscar-13 continues to move slowly south at apogee. Currently it is about 46 degrees north and moving south at about 0.05 degrees per day. At this rate it can be expected to reach the equator some time in 1995, if it hasn't re-entered and burned up by then. Its rate of movement south will probably increase as it comes further south so conditions should improve each year for southern hemisphere stations. The re-orientation to 210/0 will be in place by the time this goes to print and we should see some good conditions with opportunities for European windows to VK and low squints. At the time of writing we are experiencing short periods of single figure squints in south eastern VK with the present attitude of 180/0. Unfortunately, rather poor sun angles will necessitate a few departures from the normal run of attitude changes over the next few months. We could normally expect an attitude of 210/0 to remain in place over the December to February period but poor illumination will make it necessary to change to 130/0 in mid December. This will result in rather poor squint angles for just about everyone and to help the situation the omni-directional antennas will be switched on for longer periods than normal. The attitude will gradually be brought back 10 degrees at a time as the sun angles allow. It should be back to 180/0 by early March 1993 and will remain there until May 1993. It's going to be more than a little difficult to juggle things for optimum communications over the next couple of months so spare a thought for the control stations who have the onerous task of making it all happen.

Coming events: It was announced at the recent AMSAT-NA Space Symposium in Washington, DC that there are 8 amateur radio satellites currently either under construction or soon to be launched. The following list gives the name of each satellite and their origin:

1)	RS-15	AMSAT-UA
2)	ARSENE	FRANCE
3)	UMAMSAT-1	AMSAT-XE
4)	ITSAT	AMSAT-IT
5)	PHASE-3D	AMSAT
6)	TECHSAT	ISRAEL
7)	SUNSAT	AMSAT-SA
8)	SEDSAT-1	University of Alabama Huntsville, AL

The next couple of years certainly looks like being an exciting time for amateur radio satellite enthusiasts.

DX contests and AO-13: A couple of observations regarding some recent packet bulletins that have been circulating around the traps. One group in particular referred to DX contest style operation on AO-13 with a long list of stations heard and virtually encouraging "dog-pile" operation. It then went on to bemoan the fact that "alligator" (big mouth) behaviour is becoming more prevalent. Alligator behaviour is the very undesirable practice of winding up the up-link power to ridiculous levels in an attempt to blot out your opposition. This is both un-productive and anti-social. It has been part and parcel of the HF DX dog-pile scene for many years. It is unproductive in that AO-13 transponders have AGC circuitry to prevent such overload and anti-social in that all it does is turn down the overall system gain to the detriment of ALL users. Design steps are being taken in future transponders to turn this practice back on the perpetrator and protect the user who is trying to do the right thing, ie to use only enough up-link power to result in a down-link signal no stronger than the beacon. It seems to me that to promote DX dog-pile activity on a satellite transponder is just asking for this kind of thing to happen. It's an unfortunate reality that there are some (perhaps many) among us who will not abide by the spirit of any operational procedure requests and in the heat of contest style operations will ignore any reasonable convention. I believe that we should do everything we can to discourage the introduction of DX dog-pile contests on satellite transponders. If we want to demonstrate to others how good we are, we should take part in the only valid, non-invasive, non-destructive "contests", ie the ZRO tests. If satellite operation is, as we would like to think, about establishing and maintaining state of the art stations then it has nothing to do with "who can shout the loudest'. It has to do with operations like ZRO where your equipment and operating practice is put to the test in the most productive and positive way. Maybe one way to help prevent destructive activities is to promote more desirable ones. I'll devote some space next month to the ZRO tests, their aims, objectives and philosophy. With AO-13 coming further south by the day we will again be in a position to take part in the tests which can be scheduled to favour any particular area such as Oceania. Perhaps we can even run our own. As well as ZRO tests and to start off the new year on a happy note I'll devote most of the January column to an up to date status report on all operational OSCARs. All the best for the festive season. Look out for signals from Mt Skene from Boxing Day 1992 until 7th January 1993. All bands, all satellites to 2.4 GHz, HF and ATV.

ar

Club Corner

Moorabbin and District Radio Club

The Moorabbin and District Radio Club has had a busy and successful year. Under the leadership of Keith Turner VK3CWT and his committee night meetings have been moderately well attended, and we have had a series of very interesting speakers.

The Tuesday morning group ranges from 40 to 70 in attendance, and nearly always includes one or more visitors from interstate or overseas.

The various club kits continue to be popular and attract enquiries and sales from all over.

Our 80 metre club net on Mondays evening does not get as many new contacts as we would like to enable us to give out more of our very attractive club net awards. The rules have been commended recently, and will be published in "AR" early in the new year.

The club scored very well in the novice contest and the RD contest where we achieved the top score in VK3.

JOTA was another event in which the club participated. Club members operated at six locations, enabling about 1000 young folk in the Scout movement to see and take part in our hobby of amateur radio.

A new venture which has just started up is a Hobby Night at the clubrooms on Tuesdays. The idea is for members, under the guidance of Chris Arthur VK3JEG, to bring along items on which they feel the need for advice or help in home construction, trouble shooting or alignment etc.

The club station VK3APC continues to be upgraded and now has some new antennas as well as being fully operational on packet.

The Hamfest in May was a great success, and plans are already under way for next May at the same location. Visitors and new members are always welcome.

New Mailing Address

Please note that all mail should now be sent to the club's new mailing address, viz:-
The Secretary
Moorabbin and District Radio Club
PO Box 58
Highett Vic 3190

Allan Doble VK3AMD

Caulfield District Scouts

VI3SAC
JOTA report

This year the radio operators moved in on the Sunday, 11-10-92, and started setting up the radio masts and equipment, including two caravans, portable toilets, portable room and showers.

The masts this year were two cherry-pickers, one from BE Hire (14 metres), which held a two-element duo-band hi-gain beam, the other from Coates Hire (20 metres), which held the three-element tri-band, Chirnside beam, both being operated by remote-controlled rotators.

We also had a multi-band vertical and a multi-band dipole suspended from an ex-army portable, 13-metre mast, as well as a two-metre vertical and a beam.

The radios this year were two Yaesu 101Es, a 1960 Galaxy 5, a Kenwood 530S, and a few 2m radios operating packet as well as RTTY (radio teletype) and IBM computers tracking satellites. So, with this amount of equipment, the Guides and Scouts were able to work the world.

Contacts within Australia — 98 — 60 within Victoria, and 38 with other states.

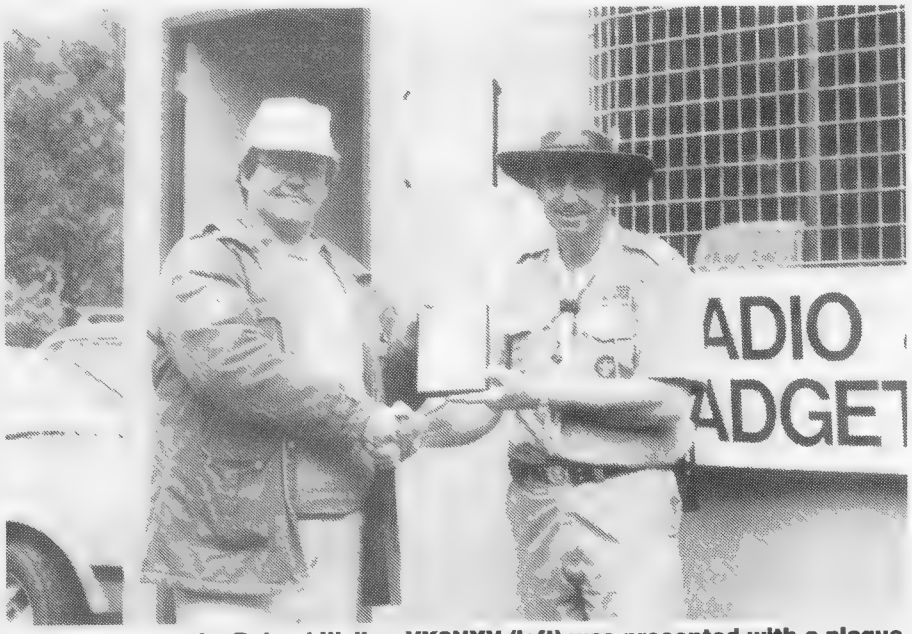
We had 27 overseas contacts with 14 different countries; two contacts on Morse Code; one with Russia; and one with Norway.

Contacted were: Russia, New Zealand, Washington State, Vancouver, Canada, Japan, Korea, West Siberia, China, Norway, Kuwait, Solomon Islands, Pakistan and New Guinea.

We also had contact via a teleprinter (RTTY) on the 2m band with the Gippsland Gate Radio and Electronics Club, which was running JOTA for the Cranbourne Guides.

Highlights of the radio were when we contacted Canberra (VK1BP) at 2.00pm Saturday for the official opening of JOTA and, to everyone's surprise and disbelief, at 2.16pm we again managed to be on the official callback with Canberra, not once, but twice, speaking with Neil Westerway, the Chief Scout of Australia, who wished us all well for our JOTA.

Operators: Greg and Cinzia Andersen, Roland Walker, Alan Weeks, Allan Tubb and Craig Cunningham were camped on-site, with many operators visiting us and having a turn on the radios assisting the Scouts and Guides to talk with other groups that were contacted.



At the final parade, Roland Walker VK3NYV (left) was presented with a plaque by Garnet Bowen VK3MTA (right), congratulating and thanking Roland for his five years of radio operation services to JOTA.

A marvellous effort by all our operators to allow the Scouts and Guides to talk to others throughout the world, and they would like to say a special thank you to the radio operators for the use of their equipment, and for spending the whole weekend with them. It was very much appreciated.

Garnet Bowen VK3MTA (VI3SAC)
Caulfield District JOTA Co-ordinator

Attention Club Secretaries
This column is for you to inform Australian amateurs about your club activities. Please talk to me, so that I may QSP on your behalf. Photographs also help to convey a message. Although space is limited let me have your submissions, preferably on disk in ASCII, or any MSDOS Word Processor. Failing that I will accept material with double spaced typing, or ***legible*** *hand writing. Although I may have to cut a few lines out, I will endeavour to give you full coverage .... VK3UV, Production Editor, AR.*

Guides from 3rd Box Hill and Cubs/Scouts from 10th Caulfield listening to the official JOTA opening from Canberra VK1BP, on our own station VI3SAC.

Divisional Notes

VK2 Notes

Tim Mills VK2ZTM

With another year drawing to a close may I, on behalf of the Council, wish everybody all the best for the coming festive season.

The end of the year is also the close of the Divisional year, and as we move into 1993 it becomes time to think about the AGM and the new Council. These dates will be given in the January notes. The last formal broadcast from VK2WI will be 20 December. The first for 1993 is expected to be on 10 January. Most likely there will be special pre-recorded morning-only broadcasts between these dates. These details, along with the office arrangements, will be given on the broadcasts later this month.

Moving into next year, the first Trash and Treasure towards the end of January, and the first Division exam late February.

During last month there were forums for both ATV and Packet operation held at Amateur Radio House. It was also the month with the special national broadcast hookup from VK8SEA, with the announcement of the new regulations on 1 November.

WIA in the Park

The first of November was also an important day when the NSW Division set up a display at Parramatta Park on the occasion of the ABC's 60th birthday. The weather was not kind, and the wet conditions kept the crowd down to a mere 200,000. The WIA display was housed in a fibreglass and glass cube, which contained an HF station under the call VI150SYD, packet from VK2RWI, ATV across the park, WICEN and pieces from the Division's antique radio equipment.

Many members spent the week leading up to Sunday working on the display and their efforts paid off. There was high and continued interests in all aspects of the hobby.

VI150SYD

This is the last month that the special call will be available as part of Sydney's 150th birthday celebrations. Any member, club or group wishing to use it during the month should contact the office for available dates and registration. A most attractive QSL card is available for contact confirmation.

New Members

Our usual warm welcome is extended to the following who joined the NSW Division recently.

R	Bunn	VK2NRX	Metz
L A	Castelli	Assoc	Werris Creek
P J	Chubb	VK2FPC	Kingsford
B	Edge	Assoc	Cardiff
W D	Edge	Assoc	Spit Junction

The Amateur Radio display in Parramatta Park

R S	Foote	Assoc	Ermington
R	Fraumann	VK2RLF	Cremorne
J J	Gleeson	Assoc	Emu Heights
L	Hayter	Assoc	Lismore
S	Highley	Assoc	Cambridge Park
I R	Jones	VK2IRJ	Cudal
K H	Lee	VK2GUF	Marsfield
D	Luks	VK2GRN	Bathurst
C	Pinckney	Assoc	Cambridge Park
W K	Scott	Assoc	Guildford
O G	Stanley	Assoc	Springwood
J	Thurston	VK2AP	Blackheath
P C	Woolhagen	VK2PSW	Albury

VK3 Notes

Barry Wilton VK3XV
Secretary — Manager
WIA Victoria

Christmas holidays.

The Victorian Division office will close on December 17, 1992 and reopen on February 9 1993. Membership applications received by post will be processed during this period.

Sherbrooke Shire and Antenna Masts

Information received from the Shire of Sherbrooke indicates that it is most likely we will be successful in our bid to have the proposed Planning Amendment L61 reworded to allow for the erection of radio masts used for the purposes of Amateur communications.

As a result of our formal written submission, we have been invited to provide a representative at a panel hearing to be held early in December, and we believe the final outcome will be favourable to the interests of members in the shire.

Members will be kept informed of the progress and final outcome of this outstanding matter.

Special Interest Groups.

It is pleasing to note the resurgence of a number of special interest groups specialising in different aspects of the hobby such as ATV, Slow Scan TV, Weather Fax, Spread Spectrum and other exotic transmission modes.

Amateur Radio has, until the advent of the "black box," been the province of experimenters, and these groups deserve to be encouraged in their endeavours, and WIA Victoria will provide encouragement and assistance whenever possible.

Sunday Broadcast — VK3BWI.

The dedicated team of volunteers who, under the guidance of the Broadcast Co-ordinator, Bill Trigg, have put so much time and effort into improving the quality of our broadcast over the last year, are to be congratulated.

This small team of very hard working people need your co- operation if the content of the regular broadcast is to be maintained.

The broadcast is not a news service established with "reporters" to seek out and write news stories, and the content can only reflect the material which is contributed by the members at large.

The broadcast team needs material of a newsworthy nature which is of interest to other members, and if you can contribute, especially on a regular basis, your efforts will be appreciated.

If you feel you could make a little time available Bill would be very pleased to hear from you!

The last broadcast for 1992 will go to air on December 20.

Transmissions will recommence on Sunday February 14, 1993.

Nominations for Council

Nominations for the 1993/1994 Victorian Division Council close at noon on Tuesday, January 15, 1993. Nominations will only be accepted on forms available from the Secretary.

Nomination forms must be obtained prior to close of business on Thursday, December 17, 1992. Nominations may be returned by ordinary mail to the office, and will be processed during the holiday period.

RD Contest.

All those who participated in the 1992 RD contest are congratulated for their efforts and team spirit which resulted in another win for Victoria. This makes three in succession and hopefully 1993 will make four! Well done!

1993 and Beyond.

The coming year will see significant advances in communications technology, together with further changes in government and community attitudes toward Amateur Radio.

We will need to contend with the effect of "deregulation" and major changes to the conditions imposed in our licences.

Increased pressure from the community at large in relation to RF interference is most certainly looming.

We are no longer able to pursue our hobby in isolation from the rest of society and the cost both financially, and in terms of human resources, will increase if we are to continue in existence.

Many members may not appreciate the amount of administrative work entailed to make it possible for the Amateur Radio Service to successfully interface with commercial enterprise and government and statutory bodies.

The best way of ensuring the ultimate survival of the hobby as we know it, is for all individual Amateurs to put aside personal self interests and parochial attitudes, and provide support and encouragement for the organisation which is trying very hard to represent its members.

MERRY CHRISTMAS AND BEST WISHES FOR THE COMING YEAR TO ALL MEMBERS OF THE DIVISION.

VK4 Notes

From the summary of the minutes of the WIAQ Council held on 1st November 1992, supplied by Ken Ayers VK4KD.

John Aarsse VK4QA presided. Council approved with acclamation the applications for 17 new members.

The president spoke on the recent passing of Jack Gayton VK4AGY, who was the station manager for WIAQ, and responsible for originating the Sunday news broadcasts.

Rodger Bingham VK4HD has been appointed as the VK4 Federal Councillor, to fill the vacancy following the retirement of Murray Kelly VK4AOK.

Councillor Ross Marren VK4AMJ has agreed to accept the position of QTC editor, a job performed by the late Jack Gayton VK4AGY for many years.

Club Liaison — Bill Sebbens VK4XZ reported on his visit to the Regional Amateur Conference held under the auspices of the Townsville Amateur Radio Club on 24th October 1992. Some 12 motions were moved, and where applicable these will be agenda items for the Council in the near future.

QSL Delays — The Queensland bureau is up to date with Inwards cards, and Outwards cards are despatched on a monthly basis. Any delays experienced can be attributed to overseas bureaus. The council has been assured by Australia Post that no delay is apparent in Australia.

Thanks to VK4OF — A vote of thanks was carried on behalf of David Jones VK4OF, for the work he has carried out on behalf of the WIA(Q) during his period in office.

An attachment to the minutes summary advises of the availability of the well known Roger Davis Morse Instruction Tapes and study books. Learn Morse by the sound method. Novice Pack $12, Higher Morse speeds available $3 each, Novice Study Guide $4.50, Theory Textbook $8.50. Postage etc $3-00. Enquiries to WIA Queensland Division, PO Box 638 Brisbane Qld 4001.

compiled by VK3UV

5/8 Wave

Roland Bruce VK5OU

I mentioned in last month's 5/8 Wave that I had met an American amateur and that we had discussed some aspects of amateur radio. One area we touched upon, which opened up debate at a recent meeting, was the question of the costs involved

in pursuing our hobby. You are probably aware that there is no fee for a licence in the States. I raised the question of who it was, then, who paid for it. Obviously there must be a cost involved somewhere along the line. An official would have to check the application, process it, issue the licence and post it off to the amateur. The official's time would cost money; the printing and distribution of the licence would cost money. Where did it come from?

He agreed that with the number of amateurs in the USA the cost would be quite considerable, but nevertheless he seemed quite happy that the money would be found from what he called "general revenue." In other words, taxes. This troubles me somewhat. I do not see it as fair that a group of people, pursuing a moderately expensive hobby, should have a subsidy from the taxes imposed on other people, especially as those very people might well be financially less advantaged than the recipients. An interesting extension of this concern was voiced at the meeting. Despite its shortcomings, the Australian health system seems to be superior to the American one. "Which would you rather have," asked the speaker, "user pays, or money being taken from taxes, to the detriment of hospitals for example?"

I think I know your answer, but it is worth considering next time someone questions the cost of being an amateur. We chose the hobby, no-one has forced us to take it up. In this day and age everything costs money, especially time, even the time of the volunteer. The volunteer's time may cost him or her money directly or indirectly, or it may cost his employer money, the cost being passed on to the customer. Perhaps, in future, we need to look at these things with an accountant's eye, rather than the heart.

I have also been talking to Milton Gooley, the curator of the Telecom Museum in Adelaide. He told me that it is not true that the museum is to be closed down. Cataloguing and packaging of the items are well under way, in preparation for the museum being transferred to the History Trust, and that the Trust is expected to announce the appointment of a curator within a few days, (it may well be that by the time this is published the announcement will have been made). Apologies to those if any who have been misled over this.

Finally, this month, welcome as a new member, to Lee MacDonald, VK5YLE.

VK6 Notes

Harry Atkinson VK6WZ

The big news this month is, of course, the 1992 Hamfest of the Northern Corridor Group, which will doubtless be the subject of a news release from the club for this or a future issue. Suffice for now to report that although numbers appeared to be down on last year, the enthusiasm of the club, exhibitors and patrons was high.

The sad news — although not expected — is that Bernie Gates passed away peacefully in the Albany Regional Hospital on the evening of 6 November. VK6KJ was a familiar callsign and voice on the bands for many years and his 7am and 8am nets on 7 and 3.5 MHz attracted a large following among amateurs and SWLs alike.

Amateur television continues to attract participants, and there's every likelihood 1993 will be a big year for VK6 ATV.

amateur radio action

"House advertisement for Amateur Radio Action magazine at the appear in AIA journal Amateur Radio"

For subscription details to just about anywhere, phone Grant Manson on (03) 601 4222

If all this looks Greek to you, perhaps it's because you're not reading the authoritative source — Amateur Radio Action magazine... at your local news outlet every fourth Tuesday.

HF PREDICTIONS

Evan Jarman VK3ANI

The sunspot number used to generate these predictions is 62.

The September issue of the "IPS Solar-Geophysical Summary" predicts a slow decline in this number over the next few months. The numbers are:-

Jan 1993 61.2
Feb 1993 60.0
Mar 1993 58.8

Using the more long term indication provided the IPS T-index (for use with the ASAPs computer program), activity is predicted to decline until the end of 1996. It should be pointed out that this is using monthly averages and is a prediction. Activity will be there for those who seek it.

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for the four bands from 14 to 24 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μV (dBU) at the MUF; the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μV in 50 Ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μV at the receiver's input and the S-meter scale is 6 dB per S-point.

μV in 50 Ohms	S-points	dB(μV)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4
0.78	S3	2
0.39	S2	— 8
0.20	S1	—14

The tables are generated by the Graph_DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

ar

VK East-Mediterranean

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9
1	9.9	-7	7.5	1	-7	-19	-32
2	9.4	-16	7.2	-1	-8	-19	-37
3	13.1	-5	10.1	-2	-1	-6	-17
4	20.3	4	15.6	-7	3	4	1
5	27.6	7	21.2	-12	3	8	8
6	27.4	9	21.8	-15	5	8	10
7	26.8	9	21.8	-14	5	8	10
8	26.3	10	21.4	-10	5	10	11
9	25.8	12	21.4	-3	6	12	12
10	25.1	14	20.2	7	15	17	15
11	24.4	18	19.6	19	22	21	17
12	23.9	21	19.1	29	28	25	19
13	23.6	24	18.8	37	33	28	21
14	23.1	25	18.3	36	32	28	21
15	22.5	26	18.2	40	34	28	20
16	21.1	25	16.5	39	32	24	15
17	19.7	25	15.3	38	29	21	9
18	18.4	26	14.2	37	27	18	5
19	17.7	26	13.4	35	25	15	1
20	16.7	26	12.3	33	21	10	-5
21	16.1	26	11.7	27	16	4	-11
22	14.5	20	11.0	21	11	1	-14
23	14.0	15	10.5	15	7	-2	-18
24	12.3	7	9.3	7	0	-9	-26

VK South-Mediterranean

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9
1	11.7	3	9.0	5	-2	-15	-29
2	11.1	-5	8.6	1	-4	-13	-29
3	15.7	2	11.8	-1	3	0	-8
4	22.6	8	18.6	-6	5	8	6
5	25.5	6	18.5	-12	2	6	6
6	25.3	5	18.2	-15	0	5	5
7	25.1	5	18.0	-15	0	4	4
8	25.0	5	17.8	-12	1	5	4
9	22.1	6	17.2	-11	3	6	6
10	21.9	8	17.7	-5	6	8	7
11	21.4	11	17.2	3	11	11	8
12	20.8	15	16.6	13	17	15	10
13	20.1	20	16.0	24	23	18	11
14	19.4	25	15.4	34	28	21	11
15	18.8	27	14.9	37	28	20	10
16	18.2	27	14.3	36	28	19	8
17	17.4	28	13.5	36	26	17	5
18	16.5	29	12.7	35	24	14	1
19	16.0	29	12.2	34	23	12	-2
20	15.9	29	12.0	34	23	12	-2
21	15.7	27	12.5	33	24	12	1
22	18.3	21	13.8	29	21	13	1
23	17.0	18	12.9	22	16	8	-3
24	14.8	13	11.3	14	8	0	-13

VK West-Mediterranean

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9
1	9.5	5	7.0	0	-20	...	...
2	8.7	-5	6.7	-3	-20	...	...
3	12.3	0	9.1	2	-3	-13	-30
4	19.1	6	14.8	2	6	4	-2
5	23.5	10	17.7	-2	8	10	6
6	23.9	8	18.7	-6	6	9	8
7	23.8	8	19.4	-7	5	8	8
8	23.5	8	19.3	-7	5	8	8
9	23.1	9	18.9	-5	6	9	8
10	22.9	10	18.7	-1	9	10	8
11	22.6	12	18.7	5	13	13	10
12	22.0	16	17.8	16	19	17	12
13	21.5	21	17.3	29	26	21	14
14	21.0	24	16.7	35	29	23	14
15	20.6	25	16.4	37	30	23	14
16	20.1	23	15.9	37	28	20	9
17	19.6	22	14.7	36	26	16	4
18	18.4	23	13.8	35	23	13	-1
19	17.4	23	13.0	33	21	10	-5
20	16.1	24	12.0	30	17	4	-12
21	17.9	25	11.2	28	12	-1	-21
22	14.1	22	10.5	22	6	-9	-27
23	13.3	23	10.0	20	4	-11	-33
24	11.6	17	8.8	11	-5	-22	...

VK East-Europe L/P

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9
1	9.9	-13	7.5	0	-4	-13	-28
2	10.6	-6	8.0	1	-3	-12	-27
3	10.9	-1	8.4	3	-2	-12	-28
4	10.4	1	8.0	4	-4	-16	-34
5	9.3	4	7.3	4	-9	-25	...
6	8.9	8	6.9	3	-14	-32	...
7	10.3	12	8.2	10	-6	-22	...
8	13.9	23	11.1	23	10	-1	-19
9	15.8	25	12.0	28	19	10	-2
10	15.9	17	12.0	18	14	8	-2
11	18.8	11	14.8	7	11	9	4
12	18.9	6	14.9	-3	6	6	3
13	18.2	1	14.2	-10	1	3	1
14	17.3	-3	13.5	-14	-1	0	-1
15	16.4	-7	12.6	-16	-3	-1	-3
16	15.7	-10	12.0	-17	-4	-2	-4
17	15.7	-10	11.8	-17	-4	-2	-4
18	16.4	-8	12.2	-18	-4	-1	-3
19	15.9	-8	12.2	-14	-3	-2	-6
20	13.7	-14	10.4	-10	-3	-2	-8
21	11.5	-18	8.9	-6	-5	-6	-14
22	10.5	-20	8.1	-3	-2	-8	-18
23	9.9	-20	7.5	-2	-3	-10	-22
24	9.6	-18	7.3	-1	-4	-12	-26

VK South-Europe L/P

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9
1	9.6	-14	7.3	0	-5	-15	-31
2	10.2	-8	7.8	0	-5	-15	-32
3	10.4	-2	8.0	2	-5	-17	-34
4	9.9	0	7.7	2	-8	-21	...
5	8.8	2	6.9	0	-15	-33	...
6	8.3	7	6.5	-1	-22	...	...
7	8.7	15	6.5	2	-15	-35	...
8	12.4	23	9.8	17	1	-14	-35
9	16.3	22	12.6	27	17	7	-7
10	13.4	22	10.3	21	9	-3	-20
11	13.0	16	10.0	15	5	-5	-21
12	12.9	12	12.0	11	11	6	-2
13	12.7	9	11.8	1	6	5	0
14	16.0	-1	11.1	-6	2	1	-3
15	15.3	-6	10.7	-11	-1	0	-4
16	14.9	-10	10.5	-13	-2	-1	-5
17	15.1	-11	10.6	-15	-3	-2	-5
18	15.8	-9	11.2	-16	-4	-2	-4
19	14.6	-11	11.5	-12	-3	-3	-8
20	13.3	-17	9.5	-8	-2	-5	-12
21	10.5	-38	8.2	-15	-12	-17	-26
22	9.7	...	7.5	-16	-16	-23	-38
23	9.2	-39	7.1	-11	-14	-23	-39
24	9.2	-24	7.1	-3	-8	-17	-33

VK West- Europe L/P

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9
1	9.3	-35	7.1	-10	-13	-21	-35
2	9.9	-19	7.6	-3	-9	-14	-27
3	10.1	-14	7.8	-2	-7	-15	-30
4	9.6	-13	7.5	-2	-8	-19	-35
5	8.5	-14	6.6	-2	-13	-27	...
6	7.9	-11	6.3	-3	-18	-34	...
7	8.9	0	7.1	-1	-15	-33	...
8	11.5	9	9.1	7	-4	-17	-36
9	15.3	14	12.3	16	8	0	-14
10	15.2	17	11.7	19	11	2	-11
11	12.9	16	10.0	14	4	-7	-23
12	12.9	10	9.9	9	2	-7	-21
13	12.6	6	12.1	4	2	2	-5
14	17.2	1	11.7	-5	0	0	-3
15	16.6	-4	11.3	-12	-2	-1	-4
16	15.8	-9	10.8	-15	-4	-3	-6
17	15.1	-13	10.4	-17	-5	-4	-7
18	14.7	-15	10.1	-17	-6	-4	-8
19	13.9	-15	10.3	-14	-5	-6	-11
20	11.7	-31	9.2	-17	-10	-13	-21
21	10.0	...	7.8	-28	-23	-28	...
22	9.2	...	7.1	-32	-30	-32	...
23	8.9	...	6.9	-29	-29	-37	...
24	8.9	...	6.9	-21	-23	-32	...

VK East-Africa

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9
1	16.6	10	11.6	8	9	6	-5
2	16.8	7	12.8	3	5	5	-5
3	16.9	4	12.8	-1	5	4	-5
4	17.0	4	13.9	-6	4	5	1
5	20.2	4	14.1	-9	5	4	5
6	20.1	4	14.1	-10	5	4	5
7	20.0	3	14.0	-10	5	4	5
8	19.9	4	13.9	-9	5	4	5
9	19.7	5	13.8	-5	4	5	5
10	19.6	7	13.7	-1	7	7	3
11	19.5	10	13.6	4	10	9	4
12	19.0	12	13.8	9	13	10	4
13	18.4	15	13.7	15	16	12	4
14	17.9	19	13.3	21	18	13	4
15	17.3	23	12.8	28	21	14	3
16	16.5	26	12.3	31	22	13	1
17	15.7	28	11.8	32	21	11	-2
18	15.1	29	11.5	32	20	9	-5
19	15.0	30	11.0	32	20	9	-5
20	15.0	30	10.9	32	21	10	-4
21	15.3	29	10.9	32	21	9	-6
22	14.8	24	10.6	26	18	6	-8
23	14.4	20	9.7	20	13	3	-10
24	14.5	15	10.1	15	10	2	-9
25	15.2	12	10.6	12	10	4	-6

VK South-Africa

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9
1	17.7	15	12.2	14	14	10	2
2	18.3	12	12.7	10	12	9	3
3	20.3	11	12.5	5	11	10	3
4	19.6	8	14.3	0	8	8	4
5	19.2	6	14.1	-3	6	6	3
6	19.7	5	14.0	-5	4	6	3
7	19.6	5	13.9	-6	4	5	3
8	19.7	5	14.0	-5	4	6	4
9	20.1	7	14.3	-3	6	7	4
10	20.0	8	14.8	0	8	8	5
11	19.6	10	13.8	4	10	9	5
12	18.9	12	13.6	10	13	10	4
13	18.2	15	12.8	14	15	11	4
14	17.5	18	12.2	20	17	12	3
15	17.0	22	11.8	26	20	13	2
16	16.4	26	11.3	31	22	13	0
17	15.8	28	11.0	32	21	11	-2
18	15.3	29	10.7	32	20	10	-5
19	15.1	30	10.6	32	20	9	-6
20	15.4	30	10.6	33	21	10	-4
21	15.7	29	10.9	30	20	10	-3
22	15.4	23	10.7	25	17	8	-5
23	15.5	20	10.9	21	15	7	-4
24	16.3	17	11.5	18	15	8	-2

VK West-Africa

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9
1	16.5	19	12.4	21	16	9	-1
2	16.9	16	12.9	16	14	9	0
3	19.1	13	15.0	11	14	11	4
4	21.5	12	16.9	6	13	12	8
5	21.6	10	16.0	2	10	10	7
6	21.5	9	17.7	0	9	9	6
7	21.3	9	17.4	-1	8	9	6
8	21.1	8	17.2	-1	8	8	5
9	20.9	8	17.0	0	8	8	5
10	21.1	10	17.1	2	10	10	6
11	20.9	11	17.2	6	12	11	7
12	20.7	14	16.4	12	15	13	7
13	19.8	17	15.6	18	18	15	7
14	19.5	20	15.3	24	21	16	7
15	18.5	24	14.7	31	25	19	7
16	18.0	26	14.1	35	28	17	6
17	17.4	27	13.5	35	27	16	4
18	16.6	29	13.0	35	24	14	3
19	15.8	30	12.2	34	22	11	-3
20	15.2	30	11.6	33	21	9	-6
21	15.2	30	11.5	33	21	9	-6
22	15.6	29	11.9	34	23	12	-3
23	16.0	27	12.2	31	21	11	-2
24	15.8	23	11.9	26	18	9	-4

VK East-Asia

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9
1	27.0	15	22.1	13	20	20	18
2	27.6	15	21.9	12	19	20	18
3	28.8	14	23.2	11	19	21	19
4	29.7	14	23.2	12	20	22	20
5	29.9	16	23.8	15	22	23	21
6	29.0	17	23.7	18	24	24	22
7	28.0	18	22.8	23	26	25	22
8	27.1	19	22.6	30	30	28	23
9	26.3	22	21.2	39	35	31	24
10	25.5	23	20.5	41	36	31	24
11	25.1	23	20.0	43	37	31	24
12	25.1	22	19.6	43	37	31	22
13	25.3	21	18.5	42	36	29	20
14	25.5	22	19.1	42	34	26	15
15	26.8	22	19.0	40	31	22	9
16	26.2	23	18.0	39	28	18	4
17	26.5	23	17.1	37	25	14	-1
18	26.5	22	15.7	33	18	5	-13
19	26.6	22	10.5	27	4	-14	-39
20	26.2	22	10.2	21	1	-17	...
21	27.5	20	13.2	27	18	2	-7
22	24.5	16	19.0	27	26	22	16
23	25.6	17	20.4	21	24	22	18
24	25.8	16	20.9	16	21	21	17

VK South-Asia

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9
1	21.4	13	17.1	8	14	13	8
2	21.6	15	17.9	9	15	15	8
3	22.0	15	18.5	9	15	15	8
4	22.1	15	18.6	8	15	15	9
5	21.9	15	18.9	8	15	15	9
6	21.6	14	17.7	10	15	15	9
7	21.3	15	17.4	14	17	16	9
8	21.2	18	17.2	21	21	18	11
9	20.9	23	17.0	33	28	22	13
10	20.4	24	16.4	37	30	25	12
11	19.9	25	16.0	38	30	25	11
12	19.3	26	15.4	38	29	20	9
13	18.9	26	15.0	38	29	19	7
14	18.4	27	14.5	38	27	18	4
15	17.8	24	14.0	35	23	12	-3
16	16.9	24	13.2	33	20	7	-9
17	15.9	24	12.3	31	16	2	-17
18	14.6	24	11.2	25	7	-6	-32
19	13.0	25	9.5	13	-12	-35	...
20	11.6	24	9.0	10	-15	...	...
21	13.5	18	11.8	22	10	-3	-22
22	16.9	18	14.7	23	20	15	5
23	20.7	12	16.0	19	18	15	8
24	21.2	14	16.6	11	15	14	8

VK West-Asia

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9
1	24.9	16	19.8	16	21	20	16
2	25.1	15	20.2	13	19	19	15
3	25.9	15	21.5	12	19	19	16
4	27.2	16	20.7	15	19	20	18
5	28.2	16	22.5	15	20	21	19
6	28.4	16	22.1	15	22	22	20
7	28.0	17	23.0	18	23	24	21
8	27.3	18	22.3	22	26	25	21
9	26.8	20	21.2	31	31	28	23
10	26.1	22	21.0	40	36	32	25
11	25.1	24	20.3	43	37	35	24
12	24.5	24	19.8	44	37	31	23
13	24.0	24	19.5	44	37	31	23
14	23.2	25	18.6	44	36	30	19
15	22.2	25	18.0	42	33	25	14
16	20.7	22	15.6	40	30	21	8
17	19.5	23	14.8	38	27	17	3
18	18.3	23	14.0	36	24	12	-3
19	16.4	24	12.6	32	17	3	-16
20	13.6	25	10.5	22	1	-18	...
21	13.2	25	10.2	20	-1	-22	...
22	17.3	21	13.5	30	18	7	-6
23	22.9	19	17.6	26	25	22	15
24	24.7	17	19.3	21	23	22	17

VK East-South Pacific

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9
1	28.3	28	23.5	33	36	35	32
2	29.0	28	23.9	34	36	36	33
3	29.0	28	23.8	35	37	36	33
4	28.6	29	23.4	36	38	37	33
5	27.8	29	22.7	39	39	37	33
6	27.3	30	22.2	42	41	38	34
7	26.6	32	21.5	47	44	40	35
8	25.7	33	20.7	50	45	41	35
9	25.0	34	20.0	51	46	41	34
10	24.3	35	19.4	51	46	40	33
11	23.7	35	19.1	51	46	40	33
12	23.4	35	18.5	51	45	40	32
13	23.6	36	17.8	51	45	39	31
14	24.6	37	17.5	50	43	37	28
15	26.8	38	18.3	49	41	34	24
16	28.2	39	19.3	48	39	31	20
17	27.7	39	19.5	49	38	29	18
18	28.2	37	19.8	45	38	30	17
19	29.5	35	19.3	41	37	32	24
20	29.3	31	17.8	39	37	34	28
21	25.4	29	19.6	37	37	35	30
22	25.9	29	20.4	35	36	34	30
23	26.3	28	21.0	33	35	34	30
24	27.2	28	22.1	33	35	34	31

VK South-South Pacific

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9
1	19.2	17	15.5	20	19	14	5
2	19.2	18	15.9	20	19	14	5
3	19.2	18	15.8	21	20	14	5
4	19.0	19	15.5	22	20	14	5
5	18.8	20	15.4	24	21	15	5
6	18.6	22	15.2	28	23	16	5
7	18.8	24	15.2	33	26	18	6
8	18.6	27	15.0	38	28	19	6
9	18.1	28	14.6	39	29	19	5
10	17.7	29	14.2	39	28	17	3
11	17.1	30	13.7	39	27	15	0
12	16.6	30	13.2	38	25	13	-2
13	16.1	31	12.8	37	24	11	-5
14	15.6	31	12.3	36	22	9	-9
15	17.8	32	11.5	34	16	5	-14
16	17.0	35	10.8	32	15	0	-20
17	16.5	35	10.3	30	13	-3	-26
18	15.7	36	10.3	27	11	-4	-26
19	15.6	36	10.1	23	11	-1	-20
20	15.5	34	10.4	23	15	5	-10
21	17.1	29	12.9	25	17	10	-1
22	18.4	18	14.1	21	19	13	3
23	18.9	18	14.7	20	19	14	4
24	19.1	17	15.2	20	19	14	5

VK West-South Pacific

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9
1	23.2	14	18.4	10	16	16	12
2	23.2	14	18.8	9	16	16	12
3	23.2	14	18.3	10	16	16	12
4	23.4	15	18.3	12	16	16	13
5	23.3	15	18.6	12	16	18	13
6	23.0	16	18.2	14	21	18	12
7	22.8	17	18.6	18	21	21	15
8	22.8	22	18.4	31	25	24	17
9	22.5	24	18.6	36	32	26	18
10	22.0	25	17.7	40	34	27	18
11	21.4	26	17.2	41	34	27	17
12	20.7	27	16.5	41	33	26	16
13	20.1	28	16.0	42	33	25	14
14	19.5	28	15.4	41	32	24	12
15	18.9	29	14.7	40	31	22	10
16	17.8	30	13.8	39	29	19	7
17	17.0	30	13.0	38	27	17	3
18	16.4	30	12.5	35	24	14	0
19	16.3	35	12.3	29	21	12	-1
20	17.0	51	12.7	24	19	12	1
21	18.9	18	14.9	20	19	14	6
22	21.0	16	15.8	16	18	16	10
23	22.5	15	16.3	13	18	16	12
24	23.0	15	18.0	11	17	16	12

VK East-USA/Caribbean

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9
1	19.7	5	14.8	3	5	4	0
2	12.3	5	13.1	2	5	2	-5
3	12.2	7	11.7	6	5	0	-11
4	12.5	10	10.9	10	5	-3	-16
5	14.2	12	10.2	13	5	-6	-22
6	13.8	18	9.6	16	3	-10	-26
7	15.2	25	9.8	18	3	-13	-35
8	15.6	29	9.5	20	3	-13	-35
9	12.5	29	9.5	19	3	-13	-37
10	11.4	29	8.2	17	-3	-23	...
11	9.7	31	7.5	9	-17	...	...
12	9.2	31	7.1	5	-22	...	...
13	11.6	29	8.9	19	0	-19	...
14	13.8	29	10.7	27	12	-1	-21
15	13.4	24	10.3	21	8	-4	-23
16	12.5	18	13.2	21	17	10	-1
17	17.4	14	13.3	13	14	9	1
18	17.8	9	13.5	5	9	7	1
19	20.0	7	15.1	-4	6	7	4
20	22.8	7	17.4	-10	4	7	7
21	22.8	7	19.3	-13	2	7	7
22	22.3	7	19.8	-14	1	6	7
23	22.2	5	19.2	-13	2	6	5
24	22.5	5	17.1	-8	3	5	3

VK South-USA/Caribbean

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9
1	15.7	5	11.9	4	4	-1	-11
2	13.4	5	10.1	5	0	-8	-22
3	12.1	6	9.1	6	-2	-14	-33
4	11.5	9	8.7	7	-5	-19	...
5	11.1	13	8.3	8	-7	-24	...
6	10.7	18	8.0	8	-10	-30	...
7	10.4	25	7.9	9	-14	-36	...
8	10.7	27	8.1	11	-11	-34	...
9	11.0	28	8.3	13	-9	-31	...
10	10.1	29	7.7	8	-17	...	...
11	8.3	31	6.4	-5	-39	...	...
12	7.8	31	6.1	-8	...	...	...
13	10.5	30	7.6	9	-12	...	...
14	10.9	29	8.4	15	-7	-28	...
15	11.4	23	8.7	14	-3	-21	...
16	15.0	18	11.4	19	11	2	-12
17	14.4	13	10.9	13	9	1	-14
18	15.2	9	11.3	8	7	2	-7
19	17.2	8	13.5	4	8	5	-1
20	19.5	8	14.6	1	8	8	3
21	21.1	9	16.1	-1	8	9	6
22	21.6	9	16.8	-1	8	9	7
23	21.9	7	16.6	0	7	7	4
24	18.9	6	14.3	2	6	4	-2

VK West-USA/Caribbean

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9
1	19.5	3	14.7	-10	2	4	1
2	17.0	2	12.9	-5	3	2	-3
3	15.2	1	11.4	0	3	0	-7
4	14.1	3	10.6	3	4	-1	-11
5	13.2	5	9.9	6	4	-3	-16
6	12.5	9	9.3	9	3	-6	-22
7	12.2	14	9.2	13	3	-8	-26
8	12.4	20	9.3	17	5	-8	-28
9	12.4	25	9.4	21	6	-9	-30
10	11.4	28	8.7	19	1	-17	...
11	9.8	31	7.5	12	-10	-33	...
12	9.3	33	7.2	10	-15	...	...
13	12.0	31	8.6	23	4	-13	-37
14	16.5	30	12.8	35	24	14	0
15	16.3	28	13.0	38	26	5	-11
16	14.3	21	11.0	31	13	4	-10
17	14.2	18	13.8	18	17	13	5
18	17.6	18	13.8	18	12	8	2
19	16.7	12	15.8	9	9	5	2
20	16.6	9	15.6	1	7	6	1
21	17.3	3	15.0	-6	4	3	0
22	19.3	3	15.2	-12	1	2	2
23	21.5	5	16.3	-17	0	2	5
24	23.1	6	17.8	-19	0	5	6
25	22.5	5	17.0	-15	0	4	4

IARUMS — Intruder Watch

Gordon Loveday VK4KAL Federal Intruder Watch Co-ordinator
Freepost No 4 Rubyvale Qld 4702 or VK4KAL@VK4UN-1

The International Amateur Radio Union Monitoring System (IARUMS) is set up to record, report, and encourage the removal of non-amateur stations from amateur band allocations. Stations targetted are usually broadcast or commercial stations from other countries. Priority is not given to local "pirates". Each country appoints a Co-ordinator, who is responsible for collating reports and forwarding them to the appropriate regulatory authorities (DoTC in Australia).

Each WIA Division, apart from VK3, has a Divisional Co-ordinator to collect reports from that Division and forward them to the Federal Intruder Watch Co-ordinator. But the main strength of the service is in the individual amateurs who spend time regularly listening on the bands and identifying types of signals and stations.

More Intruder Watch listeners are always required. Volunteers who contact either their Divisional Co-ordinators or me direct will be supplied with information, log sheets and tapes to assist in identifying modes.

Here is a recently logged list of intruders into the amateur bands:-

'Yes, I got the certificate. I'm going for the fifty knob endorsement next'.

Summary of Intruders as at October 1992

Freqency	UTC	Date	Mode	Comments	"x"
7002	1040+	061092	NON	Carrier only	
7002.5	1130+	230992	A1a	"V" beacon	30
7065	1129	210992	NON	Carrier only	
14001	1042	"	"	" ' No ID	
14003	1020	061092	XXX	Very raw AC note	
14003	1105	151092	A3/J3?	B/C phone, For language	3
14006	1037	131092	J3E	" " 2 voices, no ID	
14010	1050	141092	"??	Voices over CW no ID	
14020	2300	131092	A1A	VZA — CQ de VZA	
14050	mny	240992	"	PKJ KG SQVN TAIJ Indonesia	11
14057	0640+	230992	mny	NON holding free, A1a, F7b	42
14070/1	mny	mny	A1a	VPO DE VBX QSV K TFC OUT	17
14074/5	mny	mny	A1a	KFB-CQ DE KFB TFC OUT	15
14080	0130+	230992	A1a	KFB/VRQ TFC IN & OUT	2
14092	1025	280992	A1a	RGT77 5 letter groups TFC OUT	3
14095	0200+	230992	A1a	VPC-CQ DE VPC QSV	7
14140.5	1115+	021092	F1B	UMS group (MNR) RTTY (CIS)	10
14148	1020+	061092	A1a	PELT & OBAW. RP31B DE PELT K	
14177	"	091092	F1a	UID80, UZZAA DE UID80 QSA ?	2
14192	1012+	280992	A1a	GSTR/HLNC/WEWN/ZMV2 on freq	4
14209.5	1045+	250992	F1a	CW & DATA (CIS)	
14210	0920+	mny	A3e	Harmonic of 7105 kHz	14
14212/25	mny	300992+	A1a	P9K DE P7A QSA? QSV K	12
14211/15	mny	250992	2xF1B	2 Ind channels 250 Hz	16
14217.5	1107	mny	mny	NON/F1B/F1CW/A1a UMS CIS	17
14235.5	1103	231092	F1b	RTTY 4 kHz wide no shift	
14250	1107	mny	NON	Carrier only no ID	8
14284/5	mny	021092+	A1a	VRQ TFC, rough sigs, key clicks	30
14320	1500	141092	A3E	B/C News in English, Asian	
18093	0630+	091092	AC3	Old type WX fax D Sp 120 rpm	5
Note; easily recognised as "A squeaky wheel" listed as LRD 84 Buenos Aires, Argentina					
18125.5	0930	280992	A1a	"MBW QSA" slight key clicks	
18126.5	0800+	071092	"	Poor op. PWTY calling ZQWX	3
18140	1237	031092	mxd	M/East B/C, FM+A3E CIS	10
18165	1301	071092	F3E?	ID "Radio Armenia International" with news in English. Transmx observed down to 18127 kHz CIS	
21001	0500+	290992	NON	no ID, more info please	16
21031.5	0415	230992	F1b	UMS(MNR) 250 Hz + A1a 5 fig plus WX report, CIS	32
21083	0600	071092	A3e	B/c not in English, no ID	3
21115	0545+	241092+	A1a	CQ DE P7A QTC unhrd freq since 300992	8
21325	0500+	280992+	"	P8S DE P7A QSA?	10
21369	0530	091092	F1b/A1a	ID AS "VVH"	3
21450	0630+	230992	A3E	Radio Moscow-Yerevan (Armenia) program to Africa CIS	31
21445	1126	011092	"	B/c V+mus/2nd stn zero beat under transmx at same time, this wins friends!	
24950	0300	071092	A3e	Radio Peking 5th harmonic of 4.990 MHz	15
24978 also 24896				Very unstable A3e stations extend from 24895 to 24999	12
28515	0947	041092	A3e	B/C Middle East no ID	

20 m jammers observed on 14119 @ 1218z on 221092 4 kHz wide
PON "Motor Boat" type up to 30 kHz wide from 21100 to 21300 kHz
Observers this month : VKs 4AKX, 4BHJ, 4BTW, 4BXC, 5TL, 5LG, 6AJ, 6RO, 6XW. **ar**

Over to You

All letters from members will be considered for publication but must be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondence

VI3SAC Not the First

I noted in the October 1992 AR magazine that the Caulfield District Scouts have special call VI3SAC allocated to them. This is not the first time that a Scout group has been allocated a special call.

On the weekend of 10 and 11 November 1990, the Mount Keira Scout Camp near Wollongong NSW held its 50th anniversary. First Keiraville Scout Group obtained the special call VK2KEIRA for the weekend (try reading that in phonetics during a CQ!).

Publicity was non-existent due to the last-minute allocation; HF propagation was pathetic; and the geography markers VHF and UHF working difficult. My log shows seven contacts, of which only one was simplex. Still, we did have the callsign and QSLs.

Can anyone pre-date this allocation of a special call to a Scout group?

Graham Denney VK2GID@VK2XGJ
2/2a Macquarie Street
Wollongong NSW 2500

Murphy in the Covers

Murphy's done it again, but this time with a little bit of originality. Usually his efforts cause all kinds of trouble, but this time he made me smile. I refer to his interference with the typographer in the October issue of AR, which arrived in the mailbox this week.

He tries to kid us that old Sam Morse was a grander old man than we realised: "... Samuel F B Morse, 1791-1991" (page 6). Then he gets a bit risque (on page 31) and tells us that we should take three-second breaks (when we are) between the covers. Really, Murphy, I think we know our own limitations in the boudoir.

In these days of political gloom, I think our politicians should take a look at Poland. According to Murphy (page 36) that country's PZK, equivalent of our WIA, has introduced an "amateur union policy". If we could get such a thing into Canberra, who knows ...?

Alan Roocroft VK5ZN
505a Milne Road
Ridgehaven SA 5097

Don't Ditch a Treasure

For months I have been following the discussions about a name change for the Institute and I wish I could regard it as a bit of a banter, but it seems to have become too serious to dismiss it as such. Then I read the heartening and refreshing letter from Lloyd Butler in the October 1992 journal and I was delighted. I hope there are a great many amateurs out there who think alike. Please voice your opinion before any harm comes to a respected, world-renowned (in amateur circles) perfectly fitting name which no other organisation in the field has, or can have, having been so since the organisation's inception way back. And, please, someone tell me, what is wrong with the word "wireless"? Is there one single mode in amateur radio communication which is not wireless? Please, let us not ditch a treasure. It is one which NO-ONE ELSE has.

Jeroen Vette VK4AJV
Lot 5 McAuliffe Road
Hillsdale via Kingaroy Qld 4610

HMAS LEEUWIN 50th Anniversary

A reunion is proposed for ex-crew members and families of HMAS LEEUWIN to commemorate the 50th anniversary of her commission.

My brother-in-law Ken Taylor of Sydney, NSW, served on her, and I have volunteered to find crew members. The reunion is in Brisbane in August 1993, and possibly Cairns.

It is hoped that the Australian Government and US Navy will be involved as well. Newsletters and more information will be to hand as we progress.

Thanking you. Best 73.

Joan Wallace VK4BJE
26 Kuranga Av
Southport Qld 4215

Thank You

Thank you for the item "A Packet of Packet" in your October issue of AR.

I am in the process of building up some of the items required for packet operation, but I have had no contact or association with this mode, and am looking forward to future contributions from Kevin Olds.

I hope they will assist me in familiarising myself with the general modus operandi of the packet system.

Best wishes,

George Moss VK6GM
24 Michael Crescent,
Boya, WA 6056

QSL Cards

I have lately been receiving an increasing number of QSL cards with a computer printout confirmation stuck at the back of the card. In many cases the sender has not bothered to sign the card.

Apart from the fact that these cards may possibly not be considered valid, I object to being treated just as computer data; I have therefore decided not to answer such cards.

I wonder how many other amateurs feel about the absence of a little courtesy like a personal signature?

George Cranby VK3GI
PO Box 22
Woodend Vic 3442

ar

Murphy's Corner

A couple of good Murphys last month :-

1. He even made it into Hamads — the contact phone number in respect of enquiries for the equipment of the deceased estate of the late Bill Hehir VK3RE should read (053) 32 4011 and not as published. Apologies to the executor for any inconvenience caused.
2. The VI7AJT award, see page 36, QRM from VK7, the tom-toms are really beating on this one, it appears the qualifications for the certificate are; contact three (3) of the VI7AJT stations, and seven (7) VK7 stations. We published the original details correctly from the information received, and as the award qualifying conditions will be finished by the time you receive this, the VK7 Divisional Secretary has agreed that a certificate will be issued to any amateur who, in good faith, has attained the required contacts as previously published. Apologies from VK7. ar

Support the WIA in order to protect amateur radio frequencies

Contests

Peter Nesbit VK3APN Federal Contest Co-ordinator
24 Sovereign Way Avondale Heights 3034

Contest Calendar 92/93

Dec 4/6	ARRL 160 Metre CW Contest
Dec 12/13	ARRL 10 Metre CW/SSB Contest
Dec 26 to Jan 16	Ross Hull Contest
Jan 1	Straight Key Night
Jan 2/3	ARRL RTTY Roundup
Jan 16/17	WIA VHF/UHF Field Day Contest
Jan 16/17	HA CW DX Contest
Jan 22/24	CQ 160 Metre CW Contest
Jan 23/24	UBA (Belgium) SSB DX Contest
Jan 23/31	ARRL Novice Roundup (all modes)
Feb 13/14	PACC (Holland) CW/SSB DX Contest
Feb 13/14	RSGB 160 Metre CW Contest
Feb 13/14	Spanish RTTY Contest
Feb 20/21	ARRL DX CW Contest
Feb 26/28	CQ 160 Metre SSB Contest
Feb 27/28	RSGB 7 MHz CW Contest
Feb 27/28	UBA (Belgium) CW DX Contest

Welcome to this month's column, from your new Federal Contest Coordinator. Sincere thanks to Neil Penfold VK6NE for taking on this role over the last three years or so, in addition to his many other WIA commitments. Well done Neil.

For those of you who don't yet know me, I have been licensed for 28 years, and mainly work low band CW with occasional forays into SSB. Despite a modest station I greatly enjoy contesting, and find it to be an excellent incentive for station improvement.

My early days as a contester were spent as a teenage ham living at home with my mother who was (and still is) a keen gardener. Her ability to make things grow taller and greener than anyone else was amazing. For most of the year this was not a problem, and the garden and I co-existed quite well. However come November and my favourite contest (CQ-WW), the RF absorption characteristics of foliage took on a new and sinister meaning, especially when so much of it poked up into "my" antenna field.

A yearly ritual developed whereby I would volunteer to "prune" my mother's plants, whereupon she would issue threats about my fate if she found a single leaf missing. A standoff developed, which was usually settled by a commando raid on the garden whilst she was out shopping. Mind you I thought my pruning efforts were quite aesthetic, because nothing was touched at ground level. It was just that everything above 4m was chopped off, as if by a cruise missile. Unfortunately my mother did not appreciate the horticultural effect as much as I did, even when I told her each metre of foliage was worth at least 10 dB, and that the only thing standing between me and contest champion was her garden. I would then beat a hasty retreat to the shack, hoping that things would settle down by the end of the contest. Upon staggering out when it finished, bleary eyed but content, my mother would usually take pity on me and the meal supply would recommence. Those were the days!

With the CQ-WW having been and gone, the temptation is to wind down over the Christmas break. However, don't forget there are some interesting contests in December and January, including two 160m DX contests, 10m and RTTY contests. New Year's Day sees the Straight Key "Night", and for VHFers there's the Ross Hull and VHF/UHF Field Day. Who said there's nothing to do!

Please forward material, suggestions etc. to me at the above address, at least five weeks before the month of issue. Until next month, good contesting!

73
Peter VK3APN

ARRL 160 Metre CW Contest

This contest runs from 2200z Friday to 1600z Sunday, Dec. 4-6. The object is to contact as many US and VE stations on 160m as possible. DX to DX contacts are not permitted for contest credit.

The categories relevant to VK are: single operator "low power" (up to 150W O/P), QRP (up to 5W O/P); and multi-operator single transmitter.

Exchange RST only; W/VE will send RST and ARRL section. Contacts are worth 5 points each. The final score is the number of points times the number of ARRL sections.

Indicate the multiplier in the log only the first time it is worked. Include category entered, station details, and a signed declaration that all rules were observed. Mail your log by January 4th to: "ARRL 160 Metre Contest", 225 Main Street, Newington, CT, USA 06111.

Certificates will be awarded to the top scoring station in each category, in each DXCC country.

ARRL 10 Metre CW/SSB Contest

This contest runs from 0000z Saturday to 2400z Sunday, Dec. 12-13. The object is to contact as many local and overseas stations on 10m as possible. The same station can be worked on SSB and again on CW for QSO points.

The categories are: single operator SSB only, CW only, or mixed mode; and multi-operator single transmitter, mixed mode.

Exchange RS(T) and QSO number starting from 001. W/VE stations will send RS(T) and state/province, and maritime or aeronautical mobile stations will send RS(T) and ITU region. Novice and US Technician stations will identify as /N or /T respectively.

A maximum of 36 hours operating time is permitted out of the 48 hour contest period.

Contacts are worth 2 points on SSB, 4 points on CW, and 8 points with Novice/Tech stations on CW. The multiplier equals the total of the US states, Canadian provinces (NB, PEI, NS, VE2-8, VO1, VO2, VY1), DXCC countries, and ITU regions (1, 2 and 3). The final score equals the total number of points times the multiplier, per mode.

A Call to all Holders of a Novice Licence

Now you have joined the ranks of amateur radio, why not extend your activities?

The Wireless Institute of Australia (NSW Division) conducts a Bridging Correspondence Course for the AOCP and LAOCP Examinations.

Throughout the Course, your papers are checked and commented upon to lead you to a successful conclusion.

For further details write to:

The Course Supervisor
WIA
PO Box 1066
Parramatta NSW 2124
(109 Wigram Street, Paramatta)
Phone: (02) 689 2417
Fax: (02) 633 1525

11am to 2pm Monday to Friday
7 to 9pm Wednesday

Indicate the multiplier only the first time it is worked. Dupe sheets are required for logs with 500 or more QSOs. Include category entered, a signed declaration that all rules were observed, and mail your log by January 15th to: "ARRL 10 Metre Contest", 225 Main Street, Newington, CT, USA 06111.

Certificates will be awarded to the top scoring stations in each category, in each DXCC country. The usual disqualification criteria (violation of rules, excessive duplicate contacts, etc.) will apply.

ARRL Straight Key Night

This runs from 0000 to 2359z on New Year's Day, Friday Jan. 1, and is a yearly activity period for stations using a straight key only. Suggested frequencies on 80, 40 and 20 metres are 60-80 kHz up from the band edge.

Use "SKN" instead of RST in the exchange, to indicate to other stations you are using a straight key. This is not a contest, serial numbers are not exchanged, and ragchewing is encouraged.

Send a list of stations worked plus your vote for best fist heard, most interesting contact etc., by January 8th to: "ARRL SKN", 225 Main Street, Newington, CT, USA 06111.

ARRL RTTY Roundup

This contest runs from 1800z Saturday to 2400z Sunday, Jan. 2-3.

The object is to contact as many local and overseas stations as possible on Baudot, RTTY, ASCII, AMTOR, and/or packet. More than one digital mode may be used, but QSOs and multipliers are counted once only regardless of mode.

The bands allowed are 3.5-30 MHz, on frequencies recommended for digital operation (no 10, 18 or 24 MHz). The categories are single operator, single band or multiband; and multi-operator single transmitter multiband.

Exchange signal report and QSO number. W/VE stations will send signal report and state/province.

A maximum of 24 hours operating time is permitted out of the 30 hour contest period. Two rest periods must be taken in two separate blocks, and the on and off times clearly marked in the log. Each rest period must be at least 15 minutes. Listening time counts as operating time.

Contacts are worth 1 point each. A station may be worked once on each band for points credit. The multiplier is the total of the US states, Canadian provinces, and DXCC countries worked. KH6 and KL7 are countries; VO1 & VO2 count as one VE province. Multipliers are counted only once, not once per band. The final score is the total points times the multiplier.

Indicate the multiplier only the first time it is worked. Dupe sheets are required for logs with 200 or more QSOs. Include category entered, a signed declaration that all rules were observed, and mail your log by February 5th to: "ARRL RTTY Roundup", 225 Main Street, Newington, CT, USA 06111.

Certificates will be awarded to the top scoring stations in each category in each DXCC country.

WIA Ross Hull Memorial VHF-UHF Contest 1992 — 1993

by John Martin VK3ZJC

This year's contest will begin on Saturday, December 26, and run until Sunday, January 17, to again allow three full weeks and four weekends. Due to the lack of complaints last year, there have been no major rule changes!

The 1800 UTC start for each contest "day" has been retained, so that contest days will correspond to local days. The 1800 UTC start is 0500 local summer time in the eastern states or 0200 local time in WA. Times in your log should be in UTC. If you use UTC dates, the first contest day would be December 25/26. Using local dates, this would be December 26/27. Either is acceptable — just mark the date column in your log "UTC" or "local".

I would like to repeat last year's request to keep the DX calling frequencies clear as much as possible. Last year a number of DX contacts were missed — especially on 2 metres — because interstate stations could not fight their way through the QRM. Hopefully this year will be different! If you make contact on the calling frequency, please move somewhere else to chat or exchange contest numbers. I again suggest a frequency of .150 on each band for contest working — further up the band would be better still.

On six metres, the international DX calling frequency (50.110 MHz) must not be used for contest exchanges, and I will not accept logs from stations heard exchanging numbers on 50.110 MHz. I suggest 50.150 MHz and above — for local contacts 52 MHz would be even better.

Once again the VHF-UHF Field Day will coincide with the last weekend of the Ross Hull Contest. The contest exchanges have been made the same for both contests (except for the locator square required for the Field Day). A single contact can be entered in both logs. More details below.

I wish everyone good luck in the contest, and I hope everyone who participates will send in a log. Even a check log will do — just to show that VHF DX operation is still alive and well!

Ross Hull Contest 1992 — 1993: Rules

The WIA maintains a perpetual trophy in honour of the late Ross Hull and his pioneering achievements in the VHF-UHF field, especially the discovery and investigation of VHF tropospheric propagation. The name of each year's contest winner is engraved on the trophy, and he/she will receive an attractive wall plaque and certificate. Other certificates may be awarded to top scorers in the various divisions of the contest.

The contest is not confined to WIA members.

Duration

1800 UTC Friday, December 25, 1992 to 1800 UTC Sunday, January 17, 1992. In Eastern Summer Time that is 5 a.m. Saturday, December 26, to 5 a.m. Monday, January 18.

Sections

A. Multiband. B. Single band. All entrants will be scored for both Section A and Section B.

General Rules

All bands above 30 MHz may be used. Single operator only. One contact per station per band per contest day. Crossband contacts, repeater contacts and satellite contacts are not permitted. Contest exchanges should not be made on recognised DX calling frequencies. Entrants may operate from any location.

Contest Exchange

RS (or RST) numbers plus a three-digit serial number. Serial numbers may be cumulative or begin again at 001 at the start of each contest day. Maidenhead locator numbers may be exchanged as an aid to distance calculation.

Scoring

One point per 100 km or part thereof (ie up to 99 km: 1 point, 100 — 199 km: 2 points, etc). On 6 metres only, as above but up to a maximum of 10 (ten) points per contact.

Scoring will be based on the best seven contest days (ie 1800 — 1800 UTC) on each band, as nominated by the entrant. The seven scoring days may be different for each band.

Band Multipliers

6 m	2 m	70 cm	23 cm	2.3 GHz	Higher
x 1	x 4	x 7	x 10	x 13	x 16

Logs

Logs should cover the full contest period. Distance estimates need only be made for the seven chosen days on each band. Separate logs for each band would help, or alternatively common logs with separate score columns for each band.

Logs must contain the following for each contact:

— Date (UTC or local) and UTC time.
— Station location (if operating portable).
— Callsign of station worked, band and mode.
— Location or Maidenhead locator of station worked (if not QTHR).
— Reports and serial numbers sent and received.
— Estimated distance worked and points claimed.

The contest manager reserves the right to correct distance estimates on the basis of computer calculation, and his decision will be accepted as final.

Cover sheet

Logs must be supplied with a cover sheet containing:

— Operator's callsign, name and address.
— Station location (if different from the postal address).
— A scoring table set out as the example below.
— A signed declaration that the station has been operated in accordance with the rules and spirit of the contest.

Deadline

Logs must be received by Monday, February 1, 1993. Early logs would be appreciated. Post logs to: WIA Ross Hull Contest Manager, PO Box 300, Caulfield South, Vic 3162.

Disqualification

The normal rules apply. Entrants may be disqualified if there is evidence that claimed contacts were not made, or if logs are incomplete or illegible. Persistent use of DX calling frequencies for contest exchanges may lead to scoring penalties.

Awards

The overall winner will be the top scorer in Section A. Awards will also be made to the top scorers on each of the following bands: 6 metres; 2 metres; 70 cm; 23 cm; 13 cm; microwaves (bands above 3 GHz).

Sample Scoring Table

Ross Hull Contest 1992 — 1993: Log of VK0XXX

6 metres		2 metres		70 cm		etc.	
Date	Score	Date	Score			Date	Score
Dec 29	xxx	Dec 27	xxx			Dec 29	xxx
Jan 7	xxx	Dec 31	xxx			Jan 6	xxx
Jan 10	xxx	Jan 6	xxx			Jan 9	xxx etc.
Points	xxx		xxx				xxx
Mult	x 1		x 4				x 7
Total	xxx +		xxx +				xxx = xxxx
(GRAND TOTAL)							

Note on Calculating Distances

Absolute accuracy is not needed. All you need to know is whether the distance is above or below the nearest multiple of 100 km. An easy method is to use a compass to draw 100 km circles around your location on a map. Better estimates can be made from six-digit Maidenhead locators, using simple computer programs published in December 1990 and January 1991 "AR". A more accurate and fully error-trapped version of this program (IBM only) is available from John Martin, VK3ZJC (QTHR), if you send a floppy disc (any format) in a mailing box, together with return postage.

Pounding Brass

Gil Griffith VK3CQ 7 Church Street Bright Vic 3741

A History of the Australian Telegraph, Part 1

Eight years after Samuel Morse sent his famous first message, "What hath God wrought", in May 1844, news of the discovery of gold in Australia reached America. The young Irish-Canadian entrepreneur, Samuel Walker McGowan, then 23 years old and having been taught telegraphy by Professor Morse himself, heard the news and eventually arrived in Melbourne early in 1853 on the ship, Glance, bringing with him several sets of Morse instruments, batteries, insulators and a first class electrician. He captured the interest of investors with public demonstrations of working Morse apparatus in June 1853.

In September 1853 the Victorian government called for tenders for the construction of an experimental 11 mile line between Melbourne and Williamstown. McGowan won the contract and a fellow Canadian, William Henry Butcher (later to become superintendent of telegraph works in Queensland) built the first Australian line using local timber and imported galvanised iron wire.

In March 1854 McGowan was appointed general superintendent of Victoria's newly created Electric Telegraph Department and two days later the first line was opened for service. The Melbourne end of the line, situated on the corner of William Street and Little Bourke Street, employed a staff of 5 under Samuel McGowan, consisting of one morse operator, 2 messengers, a line repairer and an instrument fitter. The Williamstown end staff consisted of the station master and a messenger. In the first year of operation 4000 telegrams were sent, increasing to more than 12,000 within two years.

In that same year, 1854, offices were opened in Geelong and Sandridge, followed in 1855 by the telegraph office at Queenscliff and in 1856 offices at Bendigo and Ballarat and 1857 one in Castlemaine.

The opening of the telegraph office at Geelong was to coincide with the Eureka riots, and the first news of the Ballarat upheavals was flashed from the new office to Melbourne on 6th December 1854.

The rate of expansion was enormous, with new lines and more stations opening all the time. The main telegraph office of Melbourne moved from its original site to the Hall of Commerce in 1857 (site of the old Stock Exchange) and again in 1859 to the corner of William Street and Flinders Lane. In 1872 it again moved to the post office at the corner of Elizabeth and Bourke Streets, with McGowan being appointed inspector of the postal and telegraph service when the two departments merged in March 1869. He was appointed to the post of deputy postmaster-general in 1885, and died in 1887.

Meanwhile in the colony of South Australia, Charles Todd was appointed the first superintendent of telegraphs, arriving in Adelaide in November 1855. The same day,

a private contractor, James McGeorge, opened a line between Adelaide and its port using his own imported equipment. Todd completed his own line to Port Adelaide (nine miles) and beyond to Semaphore, which opened two months later on 18th February 1856. James McGeorge's earlier line was bought by the South Australian government in 1856 for 80 pounds, and dismantled.

In Tasmania, William Henry Butcher (who built Australia's first line) won the contract to build a line from George Town to Launceston (40 miles), to Hobart (120 miles), to Mount Lewis (20 miles) with a quote of 12,000 pounds. The first telegram was sent over the line on 8th July 1857 by Mr E S Chapman of the Australasian to Mr Davies of the Mercury, and was officially opened to public traffic a month later.

William Butcher was the colony's first superintendent of telegraphs in Hobart, and his brother, G B Butcher, was in charge of the Launceston office.

By 1861, only 6 years after the introduction of the telegraph to Australia, the four colonies of South Australia, Victoria, New South Wales and Queensland were linked by a line which was built entirely with hand hewn poles spaced every few hundred yards. The line from Melbourne to Adelaide had been joined by July 1858.

The line linking Melbourne and Sydney via Beechworth, Albury and Gundagai was completed by November the same year. In 1859 a submarine cable was laid to join Victoria and Tasmania, but it failed after only two weeks and was abandoned in 1861.

The final barrier, the Nullarbor, was conquered after nearly two years of building, on 8th December 1877. It had nine repeater stations which were manned stations staffed by telegraph operators who relayed the weakened messages on their way. The most famous of these stations was Eucla, where the two colonies" networks met. Here a long table separated the operators, who, because of the different code used by the two colonies, would decode the message and pass it on to their counterparts through a hole in the partition for further transmission.

To add to the confusion, the two parties kept to their own time zones with clocks showing times ninety minutes apart.

(to be continued.... material from Telecom Publicity)

Modern Uses of Morse Code

I have seen a mention of morse code being used on a cash register as warning codes of "XXX" and "OK" in Morsum Magnificat by G3GSR.

Many film buffs will remember the RKO Radio Picture logo that features the use of the code.

The latest discovery which was pointed out to me by my own children can be heard by anyone with the full Wolfenstein 3D games and a soundblaster card fitted to their computer. In the background one hears the message at high pitch and about 15wpm which says, " TO BIG BAD WOLF DE LITTLE RED RIDING HOOD ELIMINATE HITLER IMPERATIVE COMPLETE MISSION WITHIN 24 HOURS OUT". I had to listen to about three repeats as the noise of all the fighting and dying makes copying the code quite difficult.

I would be interested to hear of any other occurrences of the use of Morse code in these times, so if you come across any examples, please let us know.

Morsum Magnificat

... The Morse Magazine
Issue No 24 — Summer 1992
Reviewed by Evan Jarman VK3ANI

Morsum Magnificat is a quarterly publication for the Morse code devotee. Its aim is to provide international coverage of all aspects of Morse telegraphy, past present and future. However it seems to be aimed at those Morse operators who are fond of remembering, for there are certainly plenty of memories.There are articles on Morse code operation on railways, ships and in the military. Morsum Magnificat included current news such as the annual Alice Springs/Canberra Morse telegraph circuit, reviews of new equipment, discussions of operating procedure, letters, contest information and even a poem. It seems to be tailored to the person who just can't get enough Morse code by simply operating.

An article on Alfred Vail was welcome for few know of his work with Morse and how much of the creation of Morse code was indeed the work of Alfred Vail.

The letters section for example went for six pages and the diversity of topics discussed is impressive. Did you know that after the second world war one general had a victory message engraved in Morse code on his teeth or that the television program "Inspector Morse" musically spells out MORSE in the program theme. If you need more Morse or information about it than you can get on the air then Morsum Magnificat could be for you.

Morsum Magnificat a 48 page (210mm by 145mm) magazine, is published quarterly for a current annual charge of 9 pounds sterling. The publisher is:-
CC Arnold Partners
9 Wetherby Close,
Broadstone DORSET BH188JB
ENGLAND

How's DX?

Stephen Pall VK2PS PO Box 93 Dural NSW 2158

The other day, the August 1937 issue of "The Australian Radio World" passed through my hands. A short article titled "Ham Jargon" by D E Evans caught my eye. The author was trying to explain to the uninitiated the meaning of some special expressions used at that time by radio amateurs. Expressions like "signal squirter", "Johnson Q", or abbreviations like "BLV", "CKS", "CPSE", "MO", "OW", "RAC" were explained.

I wonder who will explain the present-day expressions of "packet", "RAM", "node", "remote", "ports", "terminal", "dummy", "log" to the readers in year 2050?

But there were some expressions which did not change. Page 39 of the magazine is headed by the title "The All Wave All World DX News", and there was even an "All Wave All World DX Club", the address of which was 214 George St, Sydney. You could become a life member of that club for the princely sum of three shillings and sixpence, which translates into today's language as 35 cents. Good old days . . . and a Merry Christmas to you all!

Willis Island — VK9W

Jim VK9NS, Kirsti VK9NL and Atsu VK2BEX made over 18,000 contacts on CW, SSB and RTTY. The callsign used by Jim and Atsu was VK9WW and Kirsti used VK9NL/W. It was an all-bands 160m to 6m activity, from 12-19 October. QSL for VK9WW goes to HIDXA, PO Box 90, Norfolk Island 2899, Australia. VK9NL/W cards go in a separate envelope to Kirsti at the same box number at Norfolk Island.

Trindade — PY0T

The correct spelling of this island's name is Trindade, not Trinidade. Trinidade is the Caribbean island state of Trinidade and Tobago (9Y) in the Antilles just north of Venezuela. Trindade Island, on the other hand, is one of the three island groups in the Atlantic Ocean belonging to Brazil. The others are Fernando de Noronha (PY0F)

and St Paul and St Peter Rocks (PY0S). The island lies almost in the middle of the Atlantic Ocean and is part of the Martin Vaz group and the approximate co-ordinates are 30 degrees W and 20 degrees S. Alberto PY3ASN was active on the rocky island of Trinidade whilst on a scientific mission for two months in October and November, with the callsign PY0TSN. Due to propagation patterns and geography, this very rare DX country is most difficult to work from the VK/ZL area.

A net operation would be ideal, but it is known that Alberto does not like nets or lists, which make a possible contact even more difficult. Bill VK4UA and Remi VK8CP and a very large group of hopeful VK and ZL DXers were holding almost a constant vigil around the 14190 frequency at about 07:30 UTC for weeks, with very little result. A few VKs and ZLs made the difficult journey to the island, the rest of the 100 or so hopefuls, including your scribe, were in the large group of "no contacts". However, as a side bonus, Andre PY0FF on the island of Fernando de Noronha appeared on the frequency one day, and made many VK/ZL operators very happy with their "first" contact.

The frequencies on which Alberto was heard in our area were 14190 and 21290. QSL for PY0TSN goes to his home call PY3ASN, direct only with SAE, two IRCs of $US1, to Alfredo S Miranda, Ave Bento Goncalves 536/301 90650-000, Porto Alegre, RS, Brazil.

HA5BUS — VK5BUS

The "bus" and its crew left Australia at the end of October. The bus was shipped to Los Angeles, USA, and the expected arrival date of the ship is in the second part of November. The crew flew out of Sydney on 31 October. Whilst in Australia, they made a quick tour of Canberra (VK1), Melbourne (VK3), Adelaide (VK5), Alice Springs (VK8), Queensland and Brisbane (VK4) during September and October. In Sydney they visited the station and transmitting facilities at VK2WI Dural, and the bus was inspected by the few VK2 amateurs who took the trouble to call on them in person whilst they were at Dural.

The future callsign in the US is not yet known; do not expect any activity from them before the beginning of December.

Slovenia — S5

During the recent CQ World Wide SSB Contest quite a number of new prefixes popped up. Among them many from the new Republic of Slovenia. Slovenia (the most north-western part of the former Yugoslavia) has converted the old YU3 callsigns into the following groupings: 1. Two-letter suffixes: S51 (ex-YU3), S52 (ex-YT3), S53 (ex-YZ3), S54 (ex-4N3), S55 full HF licence.

2. Three-letter suffixes: S57 HF Novices (ex-YZ3 and 4N3), S58 Radio clubs (ex-YU3), S50 Special callsigns reserved for "organisations".

The callsigns in use in territories of what is left of the former old Yugoslavia, now often called "New" Yugoslavia, is as follows: Serbia (YU1), Montenegro (YU6), Vojvodina (YU7) and Kosovo (YU8).

This leaves two more independent republics — Bosnia-Hercegovina (YU4) from where, due to hostilities, there is no activity, and Macedonia in the south near the Greek border with the callsign YU5. The DX Advisory Committee (DXAC) of the ARRL is recommending the re-grouping of the former YU callsigns into various "new" DXCC countries. However, a final decision cannot be expected in this matter before the beginning of the next year.

Eritrea — 9E A new DXCC country?

Carl WB4ZNH and his XYL, Martha WB4FVU, operated recently from the "independent" Eritrea with the unusual callsigns of 9ER1TB and 9ER1TA respectively. Eritrea is located on the Red Sea, and was administered by Britain from 1945 to 1952. In November 1952 the legislature of the country decided that Eritrea became part of Ethiopia and lost its status as a separate DXCC country. When the rebel forces which ousted the previous Ethiopian regime took control of Ethiopia in July 1991, the Province of Eritrea won the right to seek independence. A UN-supervised formal referendum will be held in May 1993 to legalise the independent status. There is hope that another DXCC country will be added to the list next year.

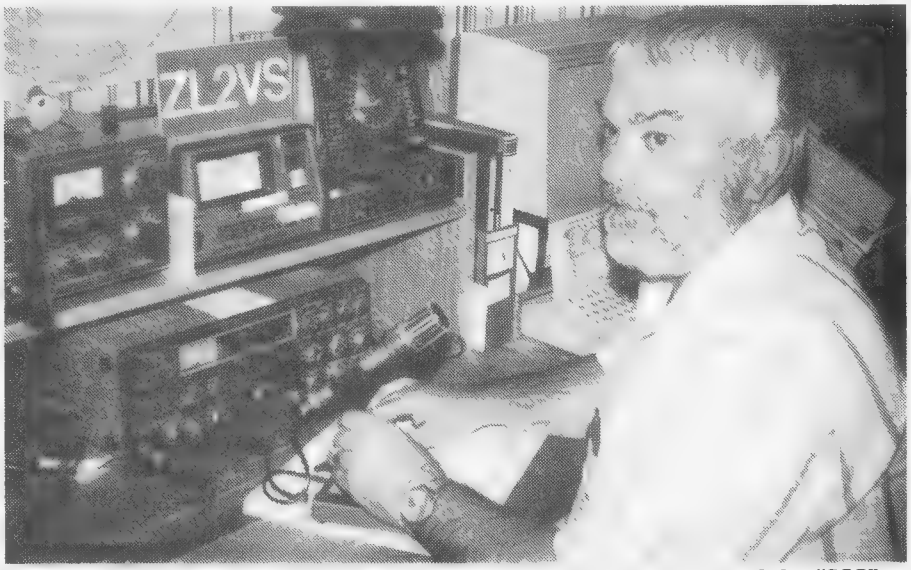
Future DX Activity

- Late 1992 or early 1993 PA3CXC intends to be active from South Sudan as 6U0XC and from Rwanda as 9X5CX, for three weeks only from each location.
- Mirek VK2DX will be active from Singapore as 9V1XE till the end of the year. QSL to DL4DBR.
- John XQ0X will be active from San Felix Island for about four months. QSL to CE3ESS.
- Duane W6REC is active from McMurdo Antarctic Base as KC4AAF until 1 February 1993.
- According to the DX News Sheet, plans are well under way to activate Baker & Howland Islands (KH1) at the end of January.
- JK1ABF will be active until 14 January on all bands from Miami Toroshima as JA9IPX/JD1 on the usual HF bands and as JK1ABP/JD1 on the WARC bands.
- For the IOTA island number chasers, Koh Samui Island offers a challenge. A short DXpedition is planned with the callsign E28DX for 10-12 December.
- There are plans to organise a multi-operator DXpedition to Equatorial Guinea (3C) in January next year.

Interesting QSOs and QSL Information

Note: callsign, name, frequency, mode, UTC, month.

- 6W7JS-14023-CW-0600-October. QSL to F6FNU Antoine Baldeck, Box 14, F-91291 Arpajon, Cedex, France.
- YJ0B-14042-CW-1000-October. QSL to SM5LNE Jan Skoldin, Rettarv 18, S-73600, Kungsor, Sweden.
- CN8FR-Idres-14243-SSB-0719-October.



"Dusty" ZL2VS, well known DXer, and one of the net controllers of the "222" net on 14.222 MHz.

QSL to PO Box 990 Fes, Morocco, Africa.

- HC8A-Rich-14222-SSB-0336-October. QSL to WV7Y Betsie D Townsend, PO Box 644, Spokane WA 99210, USA.
- PY0FF-Andre-14180-SSB-0814-October. QSL to W9VA William B Smith, 1345 Linden Ave, Deerfield, IL 60015, USA.
- V51HL-14275-SSB-055-October. QSL to W3HNK J Acure, Box 73, Edgemont, PA 19028, USA.
- ZK2XX-Marcel-14195-SSB-0555-November. QSL to ON4QM Marcel Dejonin, Evererst Raat 130, B-1940, Sint Stevens, Woluwe, BT, Belgium.
- VK8SEA-Steve-14226-SSB-1140-November. QSL to Darwin ARC, PO Box 37317, Winnellie, NT 0821.
- HL9WW-Willie-14237-SSB-1109-November. QSL to WA1GUD Warren C Elly, 4306 Corona St, Tampa, FL 33629, USA.
- VI7AJT-Frank-14226-SSB-1228-November. QSL to VK7 Bureau.

From Here and There and Everywhere

- Les VK4DA is on the mend after a fall which damaged his lower spine.
- The results of the 1991 WADEC (the 37th European DX Contest) show that the Oceania Continental winner in the CW section was VK2DXI/9M8 with 580,339 points, and the Australian winner was VK2APK with 371,184 points. In the SSB section, Australia had only one entry, VK2APK with 123,414 points.
- HA92ITU was active until 30 October. QSL to HA5NK via the Bureau.
- The reason why one does not hear visiting foreign amateurs operating in Singapore is that no temporary operations are allowed. You must be a resident and wait 90 days before your application is dealt with. Maximum operating power is 100 watts.
- Thailand is rapidly running out of the HS prefixes, due to the large number of amateurs on VHF and UHF. The next likely prefix to be used by Thailand will be E2.
- Constantly rising postal charges are creating difficulties for direct QSLing. An ordinary air mail letter from Germany to Australia costs at least DM2.70, which translates into $A2.55. According to various reports, the LABRE (Brazil) QSL Bureau has stopped sending out cards due to high postal costs.
- Saif S21A has made more than 3500 QSOs since he received his licence, mostly with Europe and Japan. He can be heard on 14256kHz at around 1735 UTC.
- YV500EA, the Venezuelan station was active in October, celebrating the 500th anniversary of the discovery of the Americas. QSL to YV5ARV.
- The RSGB DX News Sheet announced the first World Wide Islands on the Air Contest to take place from 1200 UTC Saturday 24 July to 1200 UTC Sunday 25 July 1993. The aim of the contest is to promote contacts between IOTA stations on accepted island groups and the rest of the world.
- For contacts with DU8DX, UX0AA and XU0JA, QSL Manager JA1NUT requests DXers to use the bureau and do not QSL direct.
- The Laccadive Islands were active during October, with the callign VU7DVP and VU7CVP on 15, 20 and 40m bands.
- On 25 October VK1, VK2, VK3 and VK7 began using Daylight Saving Time, which is now called Eastern Summer Time. However, not all the Australian states followed this example. It is a ridiculous situation; Australia now has five different time zones until March next year, when daylight saving ends. At present VK4 is one hour behind, VK5 is half an hour behind, VK8 is one and a half hours behind, and VK6 is three hours behind their eastern neighbours. You might be interested to know that as we in Australia advanced our clock forward one hour, many time zones in the northern hemisphere shifted back one hour as summer time ended there. As a result, the following time zones relative to Eastern Summer Time are as follows: (note: — = minus) Britain -11 hours; Europe -10 hrs; South Africa -9 hrs; Hong Kong -3 hrs; Tokyo -2 hours; PNG -1 hr; US West Coast -19 hrs; US East Coast -16 hrs; NZ +2 of VK2 Eastern Summer Time. Due to these changes there is no doubt that quite a number of amateurs, when QSLing, are confused with the correct UTC date and time. Some dates on cards are out by one day, but a two-day difference is not rare. Of course, there are those DXers (inexperienced? Confused? Or just plain ignorant?) who use local time and local date and who will complain when their card is returned with the comment "not in the log".

QSLs Received from the Bureau

Note: W=week; M=month; Y=year; FM=from; MGR=manager/call; OP =operator/call.

GJ2LU (WY FM OP), M0RSE (1Y 6M FM G3RTE), 3A2LF (1Y 9M FM OP), 4K4QQ (WY FM MGR RA1QX), ZF2PX (18M FM MGR I5JHW), KB5LRO/KH9 (1Y 2M FM MGR WA2NHA), ZS2JH (1Y 6M FM OP), QA4QV (2Y FM OP), CO2HQ (2Y FM OP), JP4DMX/HI8 (2Y FM OP).

Thank You

Many of you must be busy with something else. This is the reason for the relatively small number of contributors to this issue. Special thanks to VK2BEX, VK2DEJ, VK2DID, VK4DA, VK4OH, VK5BUS, and the following publications: QRZ DX Bulletin and the DX News Sheet.

Good DX and 73

Sign up a new WIA member today — we need the numbers to protect our frequencies and privileges.

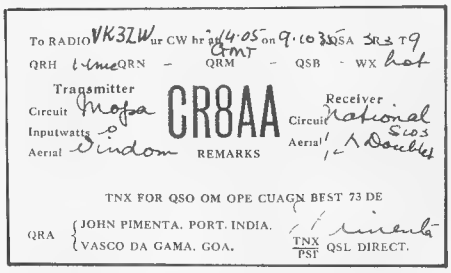
QSLs from the WIA Collection

Ken Matchett VK3TL Hon Curator WIA QSL Collection
4 Sunrise Hill Road Montrose Vic 3765 Ph: (03) 728 5350

Goa — Portuguese India

Goa, only an hour's flight from Bombay, lies about halfway down the west coast of India. A little over 500 years ago, the Portuguese navigator Alfonso de Albuquerque sailed nearly halfway around the world in mostly uncharted waters to found the former Portuguese enclave. Albuquerque became Portuguese India's first viceroy and established a thriving colony, Goa being a most important link for trade between Europe and the Far East. It was the administrative centre of Portuguese India. Remarkable examples of Portuguese renaissance style architecture still remain, which fact has made Goa a valuable tourist attraction. Possibly the most memorable thing about Goa nowadays is that it is the resting place of the famous Jesuit missionary, St Francis Xavier. Goa was one of many Eastern territories in which St Francis Xavier worked. Although he died on a small island off the Chinese coast, he was re-buried in Malaysia and re-interred in Goa. The body was finally laid to rest in a silver casket in the basilica of Bom Jesus as late as 1975. Every 10 years the basilica becomes the centre of a religious exposition. Despite being absorbed into the Republic of India in 1961, there still remain street signs in the Portuguese language as well as a sizeable Christian community in the area. In fact, approximately two-fifths of the Goan population are still Christians, the remainder being Hindu. Goans are proud of their cultural heritage and have to this day resisted attempts to integrate them into the bordering Indian societies.

CR8AA

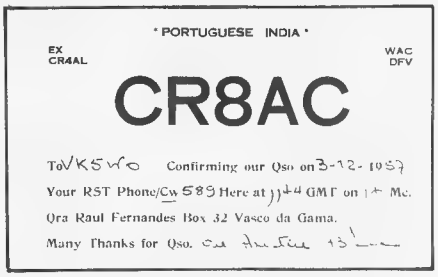

To RADIO VK3ZW ur CW hr 14·05 on 9·0 3.5 SA SR3 T9
QRH time QRN – QRM – QSB – WX hot
Transmitter Circuit Mopa Inputwatts Aerial Windom
CR8AA
Receiver Circuit National Aerial Doublet
REMARKS
TNX FOR QSO OM OPE CUAGN BEST 73 DE
QRA JOHN PIMENTA. PORT. INDIA. VASCO DA GAMA. GOA.
TNX PSE QSL DIRECT.

Goa first appears in country listings as early as the latter part of the 1920s. Even in the days of intermediates, the precursors of callsign prefixes (See AR Nov 1991), Goa was grouped together with India under the intermediate AI. The letter A indicated the continent (Asia) and the letter I the individual country (India). In those days Australia had the intermediate OA (Oceania — Australia). Such intermediates became effective on 1 February 1927 but were replaced on 1 Jan 1929 by what we now know as callsign prefixes. All Portuguese colonies carried the prefix CR allocated from the international prefix block of CRA-CRZ. (Nowadays Portugal and its territories may use prefixes from the block CQA-CUZ). In the early 1930s the CR prefix was modified by the addition of a series of numerals which differentiated the various colonies. Thus Cape Verde carried the prefix CR4, Angola CR6, Portuguese India CR8, Portuguese Timor CR10 and so on. In the mid-1930s people were asking the question "What IS a country?" There were several lists of "countries" put forward by many amateurs, one of the best being the list from W9ADN, reproduced in the April 1935 edition of AR in an article by the late Bob Cunningham VK3ML. Portuguese India was suggested as a separate country. It should be pointed out that at that time Portuguese India included the territories of Daman (frequently spelled as the Portuguese Damao) and nearby Diu as well as that of Goa. Daman and Diu were to become one separate country to Goa at a later date. The last DXCC country listing before the Second World War (QST Jan 1939) listed Goa as CR8 but without any reference to Daman or Diu.

Both before WW2 and after, Goa was regarded as one of the rarest of DXCC countries. In the August 1954 edition of QST, a list of the most sought after countries was given. It was based upon a survey of the DXCC countries still required by the top DXers on CQ's DXCC Honour Roll. Of 70 listed countries, Goa ranked third just behind Seychelles and Albania. The QSL shown, CR8AA was sent to VK3ZW by John Pimenta for a QSO in October 1935. John describes his transmitter as MOPA (ie master oscillator, power amplifier) and the antenna as a Windom. This type of antenna enjoyed considerable popularity during the 1930s. It was a multi-band off-centre-fed antenna consisting of a half-wave length cut to the lowest frequency to be used and employing a single-wire feeder. The Windom worked well on the even harmonic frequencies, but with the single-line feeder some sort of antenna coupling system became necessary. More modern versions make use of twin lead and a balun which considerably reduce the amount of rf in the shack.

CR8AA must have been fairly active since it was reported under the heading "DX Notes" in the Jan 1936 issue of QST that W6CXW had QSOd the station who informed him that the latter had "made WAC", quite a reasonable achievement in those days, considering the low power used and the paucity of stations in both South America and Africa. The station was reported as having a T9 note on the 40m band.

CR8AC


• PORTUGUESE INDIA •
EX CR4AL
WAC DFV
CR8AC
To VK5VO Confirming our Qso on 3-12-1959
Your RST Phone/Cw 589 Here at 1144 GMT on 14 Mc.
Qra Raul Fernandes Box 32 Vasco da Gama.
Many Thanks for Qso.

There was little activity from Goa after the war. DXCC chasers were fortunate indeed that a Portuguese amateur CR8AC was operating in the late 1950s and early 1960s. Raul Fernandes had been active at an earlier date from the Cape Verde Is as CR8AL. His Goan QTH is given as Vasco da Gama, a small town within the former enclave named in honour of the Portuguese explorer who had opened up the new trade route around the Cape. The WIA Collection contains only one other post-war QSL card from Goa. This is HB90P/CR8 which was for a portable operation from the Goa airport. Received from the estate of the late Tom Mulder VK6MK, it is dated October 1959, and expresses thanks to Raul for the assistance given in the operation.

After the partition of British India in 1947, the new Indian Government demanded (but without success) the Portuguese withdrawal from Goa, Daman and Diu. There followed 14 years of guerrilla activity and border skirmishes. Finally the Portuguese capitulated on 18 December 1961. The April 1962 edition of QST announced that no further credits would be given for contacts with the Portuguese Indian colonies, effective from 1st January 1962. They then joined the growing list of deleted DXCC countries.

Author's note

The first article on "QSLs from the WIA Collection" appeared nearly five years ago in the March 1988 edition of Amateur Radio. If you have enjoyed reading the stories

behind QSL cards and recognise this to be an important aspect of the history of amateur radio, perhaps you would add your name to the hundreds of amateurs who have given generously toward the WIA QSL Collection. As previously stated, although we particularly look forward to receiving rare DX QSLs, special and commemorative issues, rare prefixes, pre-war and pictorial QSLs, we do welcome donations of all QSLs. Your donation will receive a personal acknowledgment as well as an acknowledgment in AR. Please contact the writer, who is also the honorary curator of the collection. Special arrangements can be made for the transport of large numbers of QSL cards. Will YOU help?

Thanks

The WIA (Vic Div) would like to express its thanks to the following who have kindly donated QSLs to the collection. (Supplementary list)

Aubrey VK2AXT
Lay VK3CF
Fred VK3CFK
Errol VK3GG
Peter VK3QI
Andrew VK3WAB
Stan VK4LF (VK3TE)
Ray VK5DI
Mike VK6HD

Also to the family and friends of the following "silent keys" (Supplementary List):

Dave Richards VK4UG
Jerry Bahre VK4YB (courtesy of Stan VK4LF)
Tom Mulder VK6MK (courtesy of Jim VK6RU) **ar**

VHF/UHF An Expanding World

Eric Jamieson VK5LP PO Box 169 Meningie 5264

All times are UTC

Countries worked from Australia on six metres

Below is an amended list following advice from amateurs as the result of the list published last month. The list remains an interim list only and is subject to further alterations as they are made available. From now on only alterations will be advised until the final list is published. The total of countries worked now stands at 169.

It is encouraging that sufficient interest has been stimulated by this list for various amateurs to review their log books and QSLs in an endeavour to arrive at a correct list. If you have a date which corresponds with that listed, please advise this, along with the time of your contact. However, do not delay advising of adjustments as the exercise cannot be continued indefinitely.

Advance notice will be given as to the cut-off date for alterations, but this is likely to be several months down the track. The final list will contain the times of the various contacts — for the moment those times are confidential.

Complete List — as amended at 31/10/92

Station	Date	Country	Claimed by
3D2AG	23/03/92	Rotuma Is	VK2QF
3D2SM	20/05/90	Conway Reef	VK4BRG
4S7AVR	29/03/89	Sri-Lanka	VK6KXW *
4X1IF	01/04/91	Israel	VK9YJ
5H1HK	05/04/89	Tanzania	VK4BRG
5W1AU	05/04/82	West Samoa	VK4ZNC *
5Z4CS	28/03/82	Kenya	VK8GB
6W1QC	12/11/90	Senegal	VK4BRG
6Y5RC	28/03/81	Jamaica	VK4PU
7Q7JA	27/03/91	Malawi	VK6RO *
8P6JW	18/04/89	Barbados	VK2QF
8R1AH	02/04/89	Guyana	VK8RH
9H1BT	25/03/89	Malta	VK8RH
9K2ZR	03/04/92	Kuwait	VK6JQ *
9L1US	08/10/90	Sierra Leone	VK4BRG
9M2DQ	26/09/58	Malaysia West	VK6BE *
9M8STA	13/08/89	Malaysia East	VK8ZLX
9N1BMK	02/05/79	Nepal	VK8GB
9Q5EE	06/04/91	Zaire	VK3OT
9V1ES	17/11/89	Singapore	VK8ZLX
9Y4LL	10/04/82	Trinadad	VK8GB *
A22BW	28/04/91	Botswana	VK6HK
A35JT	10/04/82	Tonga	VK4ZNC *
A45ZM	04/04/90	U.A.E.	VK8RH x/band
AH8A	19/04/81	Am. Samoa	VK2BNN (SK)(KH8)
BY5RA	28/09/84	China	VK8GB
C21AA	06/03/71	Nauru	VK4ALM
C6ANY	21/04/92	Bahamas Is	VK2QF
CE0DFL	24/04/90	Easter Is	VK4ZJB
CE3/KB6SL	14/10/90	Chile	VK4BRG
CN8ST	20/10/91	Morocco	VK8RH
CO2KK	16/04/89	Cuba	VK2BA
CR9AJ	24/09/78	Macau	VK8GB *
CT1BH	23/02/91	Portugal	VK8ZMA *
CU3/N6AMG	27/11/91	Azores	VK2QF
DL0SI	05/11/89	Germany	VK6JQ *
DU6/ WB5LBJ	11/10/77	Philippines	VK8GB
EI6AS	12/10/89	Ireland	VK8ZLX
EK0JA	20/04/92	Asiatic Russia	VK8ZLX (UA0)
ES5PC	29/01/92	Estonia	VK6PA
F9DI	13/10/89	France	VK8ZLX
FK8AX	15/12/78	New Caledonia	VK3AKK *
FM5WD	11/04/90	Fr. Martinique	VK8ZLX
FO0CI	13/03/92	Clipperton Is	VK4DDC *
FO8DR	12/04/81	Fr. Polynesia	VK2BA
FW/W6JKV	23/03/90	Wallis & Fortuna	VK4ZJB *
FY5AU	30/03/89	French Guyana	VK4BRG
G4FJK	20/03/89	England	VK6KXW
GD3AHV	28/02/90	Isle of Man	VK6HK
GI4OPH	12/10/89	North Ireland	VK8ZLX
GJ4ICD	12/10/89	Jersey Is	VK4DDG *
GM4GDT	28/02/90	Scotland	VK6HK
GU2HML	01/11/89	Guernsey	VK4JH *
GW3LDH	12/10/89	Wales	VK8ZLX
H44DX	26/04/79	Solomon Is.	VK8GB
HB0AHB	13/10/91	Liechtenstein	VK6PA
HB9SJV	03/01/92	Switzerland	VK6PA
HC2BI	29/03/91	Ecuador	VK9YJ
HC5K	11/11/91	Galapagos	VK8RH +++
HH7PV	19/09/89	Haiti	VK2BA
HI8WPC	02/04/89	Dominican Rep	VK2BA
HK0/W6JKV	28/03/92	San Andreas Is	VK4JH *
HK0/W6KV	04/04/92	Malpelo	VK4ZAL *
HK1JXV	19/03/90	Colombia	VK4ZNC *
HL9WI	20/10/74	Korea	VK4ALM
HP3XUH	25/01/89	Panama	VK4ZNC *
HR1WPK	02/04/90	Honduras	VK5RO
HS1WR	15/03/80	Thailand	VK9XT (VK3OT)
I2CCD	03/03/91	Italy	VK8ZLX
IS0AGY	10/11/91	Sardinia	VK4JH *
J73PD	03/04/89	Domininca	VK4KJL +++
JA1AHS	22/01/56	Japan	VK4NG *(SK)
JD1ADP	05/05/79	Ogasawara Is	VK8GB
JD1YAA	31/03/84	Minami Torishima	VK8GB
JT1CO	28/09/91	Mongolia	VK6HK
KC6IN	23/03/80	East Caroline Is	VK8GB (V63)
KC6SZ	14/10/79	Yap — W.Car.Is	VK4JH *
KG4SM	15/03/89	Guantanamo Bay	VK4PU *
KG6DX	04/03/78	Guam	VK8GB (KH2)
KG6RO	24/09/78	Saipan	VK8GB (KH0)
KH0/ JJ1AEB	14/04/90	Mariana Is	VK5RO
KH1/VK9NL	03/04/88	Howland Is	VK4TL
KH3AB	28/03/81	Johnston Is	VK8GB
KH4AE	28/02/91	Midway Is	VK4BRG
KH5/W6HTH	17/04/81	Jarvis/Palmyra	VK5RO
KH6/W7ACS	26/08/47	Hawaii	VK5KL
KH7/KH6JEB	23/03/90	Kure Is	VK9LE (VK3OT)
KL7/WA4TNV	13/03/79	Alaska	VK2KAY
KP2A	26/03/89	Am. Virgin Is	VK3OT
KP4AAN	13/04/81	Puerto Rico	VK2DDG
KR6BU	20/03/51	Okinawa	VK9XK (VK4XA)
KX6AF	20/03/58	Marshall Is	VK4NG *(V73)
KZ5NW	/03/81	Canal Zone	VK4RO+++
LA3EQ	25/02/89	Norway	VK6HK
LU8OB	28/04/58	Argentina	VK4NG *(SK)
LX1SI	27/10/90	Luxembourg	VK6JQ *
OA8ABT	12/10/90	Peru	VK4BRG
OE5PAM	01/03/91	Austria	VK6JQ *
OH1YP	25/02/89	Finland	VK6KXW *
OK1DIG	08/02/91	Czechoslavakia	VK6PA
ON7YD	28/10/90	Belgium	VK6JQ *
OZ1LO	20/10/90	Denmark	VK4JH *
P29GR	23/11/75	Papua N.Guinea	VK4ZJB *
P43AS	26/03/89	Aruba Is	VK4KJL *
PA0RDY	12/10/89	Netherlands	VK4ZJB *
PJ9JT	02/03/89	Curacao/Bonaire	VK4PU *
PY0FF	26/03/92	Fernando/Norona	VK6PA
PY5CC	20/04/91	Brazil	VK7IK
PZ1AP	30/03/89	Suriname	VK4BRG

S21ZE	11/10/92	Bangladesh	VK8RH+++
SM6PU	25/02/89	Sweden	VK6KXW *
SV1DH	17/10/89	Greece	VK8RH
T20AR	15/12/87	Tuvalu	VK2XJ *
T30DJ	28/03/89	Kiribati West	VK4PU *
T32AB	15/03/82	Kiribati East	VK2DDG (VK4DDG)
T33JS	19/05/89	Banaba Is	VK4BRG
T70A	21/10/91	San Marino	VK6JQ *
TG9AWS	28/03/89	Guatemala	VK2BA
TI2NA	26/03/81	Costa Rica	VK2DDG *(VK4DDG)
TL8MB	04/04/91	Central Africa	VK6JQ
V51E	25/04/91	Namibia	VK6KXW *
VE7AQQ	08/04/59	Canada	VK2ADE (VK4QM)
VK0WW	10/12/72	Macquarie Is	VK2NN *
VK2BKE	05/01/75	Lord Howe Is	VK3ZNJ *(VK3AKK)
VK2BZ	05/12/48	Australia	VK7LZ *
VK9BW	25/04/58	T.New Guinea	VK9XK *
VK9XK	29/11/51	Papua	VK4BJ *
VK9XT	10/03/80	Christmas Is	VK8GB
VK9ZM	13/01/89	Mellish Reef	VK2BA
VK9ZM	22/11/78	Willis Is	VK2BNN *(SK)
VK9ZNG	27/11/75	Norfolk Is	VK2ZRU
VK9ZYX	22/11/81	Cocos Keelings	VK8GB
VP1MT	13/04/79	Br. Honduras	VK5RO
VP2MO	01/04/89	Montserrat	VK2BA
VP2VGR	17/03/81	Br. Virgin Is	VK3OT
VP5D	25/03/89	Turks/Caicos	VK2QF
VR2BC	18/12/49	Fiji	VK2AH *
VS2DQ	19/04/58	Malaya	VK6ZAV *
VS5DX	26/11/80	Brunei	VK8GB
VS6AB	05/03/80	Hong Kong	VK8GB
VU2JPN	17/03/81	India	VK8GB +++
W6PUZ	14/03/58	USA	VK4HD *
XE1FU	01/05/59	Mexico	VK3ALZ
XF4L	14/04/89	Revilla Gigedo	VK2QF
YB9X	03/01/80	Indonesia	VK6OX
YJ8KM	01/11/76	New Hebrides	VK4ZSH
YO7VY	21/10/91	Romania	VK8RH
YS1ECB	06/04/84	El Salvador	VK2DDG *(VK4DDG)
YU3EA	03/03/91	Yugoslavia	VK6JQ *
YV5/DL3ZM	19/03/81	Venezuela	VK2DDG
ZA1ZJ	27/10/91	Albania	VK6PA
ZB0T	22/10/91	Gibraltar	VK8RH
ZC4MK	31/10/90	Sov/Bases Cyprus	VK6RO
ZD7BW	21/03/81	St. Helena Is	VK4TL
ZD8TC	20/03/82	Ascension Is	VK4RO *
ZF2DN	28/03/81	Cayman Is	VK2BA
ZK1WL	28/03/89	North Cook Is	VK2QF
ZK1WZ	29/03/89	South Cook Is	VK4ZJB *
ZK2RS	29/12/82	Niue Is	VK2BA
ZK3KY	13/10/90	Tokelau	VK4BRG
ZL2DS	29/12/48	New Zealand	VK4HD *
ZL4OY/C	19/06/83	Chatham Is	VK2BA
ZL9TPY	21/01/90	Auckland Is	VK4BRG
ZM8OY	10/12/85	Kermadec Is	VK4PU *
ZP6XDW	28/04/91	Paraguay	VK4BRG
ZS6XL	29/04/90	South Africa	VK6RO
ZS9H	25/04/91	Walvis Bay	VK6KXW +++

The above list is copyright to Amateur Radio, VK5LP and VK3OT.

* = change of details; +++ = added entry.

The above represents 56 changes to the original list and 6 additions.

As lists are published there are bound to be alterations, but please send the date and time of your claimed contact. Delete BV2DP or BV2DQ and EA8/G3JVL.

Please note: VK2DDG now VK4DDG, VK2ADE now VK4QM, VK2BNN deceased, VK9BP now VK8RH, VK9XK now VK4XA, VK9ZLX now VK8ZLX and VK3ZAZ now VK3OT. Thanks to VK2BBR, VK2QF, VK3AMK, VK3OT, VK4JH, VK4PU, VK4XA, VK4ZJB, VK4ZNC, VK5KL, VK5NC, VK6BE, VK6JQ, VK6KXW, VK6RO, VK7LZ, VK8RH for their assistance with the list.

The UK (G) Country Firsts at July 1992 totalled 138 with 128 showing details and 10 awaiting details. First contacts were made in 1947. The Netherlands Firsts at October 1992 totalled 138 countries, all made since 1/3/88 except for 11 which were made in 1981 — I presume there is a logical explanation for those earlier contacts. Source: UK Six Metre Group Newsletter.

Tasmania

Received a nice letter from that well known old timer, Col VK7LZ who mentioned that he sat for his licence exam in November 1932! He said he has enjoyed many years of amateur activity.

Col received a major setback to his operating in 1984 when the Government acquired his home to make way for the main Hobart to Launceston highway. Following that disruption he did not re-erect his old towers. However, last September he came on six metres again, using his former four element beam and 50 watts and will be looking for Es contacts this year. In addition he enjoys working the satellites. Very pleased to hear from you Col.

Lismore

Another letter I was pleased to receive was from Robert VK2BBR at Lismore. He mentioned the good contacts we had years ago on 52 MHz and is ever ready to QSY there for a chat. At the moment, his time is somewhat limited due to being in the fifth year of a six year university degree course in chemistry, and doing it by correspondence!

Robert's equipment consists of an Icom IC 575A, dual gate GaAsFET pre-amp and a 100 watt amplifier. This is attached to a stacked pair of 8 element LP yagis fed with 22 mm (7/8 inch) heliax, at a height of 15 m (50 feet) and 19.8 m (65 feet) respectively. This equipment has resulted in 64 countries being worked.

San Andreas Expedition

This expedition from 1/4 to 13/4/92 resulted in 203 stations from 16 countries being worked on six metres. They were W4-22, W5-39, W6-38, W7-8, VK-25, ZL-23, LU-24, CE-3, ZP6-1, KH6-2, XE-1, PY-7, ZK-1, 3D2-2, TI-3, FO-1, CX8-1, 9H1-1 and EA8-1. Callsign was HK0/W6JKV and Jim used an IC-575 plus amplifier, 10 element M^2 antenna at six metres. Jim also worked 21 stations on 144 MHz EME, using a TR-751 and amplifier, the antenna being a single M^2 2M-5WL at three metres.

While on the subject of dx-peditions, the Clipperton Island (FO0CI) jaunt lasted for nine days from 6/3/92 and resulted in 48,000 QSOs! I have no advice how many of these were on six metres. There were seven complete stations with nine operators.

Six metres in general

Lyn VK4ALM from Rockhampton, in a brief letter advising of three more confirmations for his place on the Standings List, said that up to 3/10 six metres had been quiet, including the absence of JAs. However, he had managed two QSOs with Louie HL9UH, now at Seoul. He was formerly KG6UH/DU1 and worked many VK stations.

John VK4ZJB from Brisbane, said that the last rare DX station he worked was UZ0CWW in April. The V73 and KH6 beacons have disappeared. The monthly Smoothed Mean Average is down to 118.7 which corresponds to a MUF of about 39.9

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MHz. Even the north-south TEP is not working normally so there have been few JA openings. However, John is not despondent, he said those who wanted to work six metres DX were well rewarded and will have pleasant memories of the last five years.

Steve, VK3OT from Hamilton, had a good TEP opening to Japan on 15/10 when he worked 5 stations. Even better were the results on 18/10 when he worked 40 JAs between 0335 and 0445, all signals being 5x9. Areas worked were 1,2,9,0. He also reported that on 7/10 at 1100, NI6E copied the VK3SIX beacon.

Geoff, VK3AMK from Frankston, sent in some interesting facts regarding the present six metres list. In response to a recent comment from me, Geoff writes and I totally agree that we, in Australia, have collectively done extremely well on six metres when you take all factors into consideration.

I think any of the European big guns would wonder what had hit them if they had to work a season or two under our limitations. What I think most VKs don't realise is that a lot of European "DX" is worked under similar conditions to typical VK-ZL, VK-JA propagation.

It's just simply a matter of so many active countries grouped in a similar geographic area where we have very few; eg compare say, our northern path, we have to go through about 30 degrees of latitude from Melbourne to reach our first country (P29). A GJ station doing the same thing looking south would have crossed the Mediterranean and be down around Mali etc. The Melbourne to Tokyo path is virtually identical in length to the GJ to Walvis Bay path. Enough said I think!

In stating the above, I am sure Geoff has no wish to denigrate the efforts of the European stations, but simply to place the matter in perspective. Personally, we are both very happy for the Europeans, that finally, after a long wait in the wilderness, they were granted 50 MHz and certainly put it to good use, proving at the same time that they could operate without causing widespread problems for other spectrum users. They also provided many contacts for VK stations.

Bangladesh

Rex VK8RH in Darwin now has in his log what must be considered a "plum" contact, when he worked S21ZE on CW, at 1405 on 11/10/92. Rex was alerted by Andy VK8AH, who a few minutes earlier had heard S21ZE but was unable to complete a contact with the dx-pedition of JA1UTE and JA1UPA.

In a letter to VK3OT, Bill VK6JQ from Broome, says he heard the S21ZE (Bangladesh) beacon on 50.115 at 1258 on 8/10/92 RST 519 sending — S21ZE Pse Rpt .125 K — each minute.

Bill's equipment is a TS600 with an output power of 12 watts to a six element long yagi up 12 metres. He believes the best six metre QTH in VK6 must be Karratha where lives VK6PA. He says Steve hears Europe up to an hour before he does in Broome and for an hour after they leave Broome. Interesting!

Overseas on six metres

Ted Collins G4UPS reports the club station UZ2FWA was activated from 20/6 to 28/6, and UA2F/DK2ZF from 4/7 to 11/7, during which time 35 countries were worked, two outside of Europe being Canada and USA. UA2F/DK2ZF worked 684 stations on six metres during his week of activity. Not a bad effort!

Ted's September report shows that with the gradual disappearance of Es, the number of European contacts has fallen dramatically. Best day was 5/9 from 1800 to 2230 with the following prefixes available: SP, YU, 4N3SIX/b, IK, SV1SIX/b, EH, ZD8VHF/b, CT, PY5CC, ZB0T. On 15/9: 1814 to 1840: LU2, LU7, ZD8VHF/b, CT0WW/b. Solar data on 28/9 — 116 10 2.

Geoff GJ4ICD from Jersey Island also reports a quiet month for September! He says that during the August Perseid meteor showers, GW7NGP worked 19 countries by that mode, using SSB. An ES opening between 1200 and 1400 on 8/9 produced 4N4VO, OE, DL, YU and OK. Good tropo opening on 16/9 with all bands from 50 to 1296 MHz being involved. A late item included in Ham Radio Today for January 1993 says that Hal ZS6WB is to dispatch a 50 MHz radio to C9RDM in Mozambique. Ivo ZS6AXT reported poor 50 MHz propagation to the end of September, having only worked Italy and Spain, compared with 17 countries last year.

Closure

I know I have been at it for a long time, but with this month's columns I commence my 24th year of writing for AR. That's more than a third of my lifetime and only the first seven years of my time as an amateur, have I not been so writing! Geoff VK5TY — please note how you passed the buck and got me involved! Compliments of the season to all my readers and a big "thank you" to those who write, including correspondents from overseas, all of whom keep me informed of band happenings. Also to the Editor of AR, and his staff, who, at times, have to tolerate my ramblings, for their help and guidance over the year, especially during that run-in period when we changed over to computer disk for the submission of information.

Closing with two thoughts for the month: In more homes than ever, a new challenge for Father Christmas this year will be sneaking in without setting off the burglar alarm and Worry is today's mouse eating tomorrow's cheese.

73 and good DX from The Voice by the Lake.

Technical Correspondence

Substitute ICs

In reference to the article in the August issue by VK5BGZ concerning substitute programmable ICs for the IC-22S transceiver, I would advise that I also encountered a faulty TC5080P in a friend's unit some years ago. However, I substituted a Motorola MC14569 (4569) dual four-bit programmable divider rather than two 4526s, at approximately the same cost. Either divider in this chip may be configured for either binary or BCD operation, and it will therefore replace the 5080.

The substitution may not be made directly, as the pin-outs are different. This was overcome by mounting a 16-pin DIL socket on a piece of vero-board four holes wide by eight holes long. Wires from a short length of telephone cable were taken from each pin to the appropriate 5080 termination points on the PCB. They were used to draw the vero-board as close as possible to the PCB before terminating. This enabled the MC14569 to be mounted within the shielded enclosure. This arrangement also allowed for ease of future replacement of the IC.

The equivalent pin-outs are:

MC14569	5080
Pin 1	Pin 10
Pin 2	Pin 12
Pin 3	Pin 1
Pin 4	Pin 2
Pin 5	Pin 3
Pin 6	Pin 4
Pin 7	Pin 13
Pin 8	Pin 9
Pin 9	Pin 15
Pin 10	Pin 11
Pin 11	Pin 5
Pin 12	Pin 6
Pin 13	Pin 7
Pin 14	Pin 8
Pin 15	Pin 14 (n/c)
Pin 16	Pin 16

S V Ellis VK2DDL
82 Taree Street
Tuncurry NSW 2428

Spotlight on SWLing

Robin L Harwood VK7RH 52 Connaught Crescent West Launceston Tas 7250

1992 is rapidly coming to a close and once again we have been able to follow developments via shortwave radio. The major news story for the year undoubtedly was the fratricidal war in the former Yugoslavia. During the year, Radio Croatia appeared on shortwave, both from near Zagreb and also via a relay of Radio WHRI in Noblesville, Indiana. Radio Yugoslavia in Belgrade continued to be heard, although not as easily as before. Listen around 9620 at 2100 for an English transmission. Croatia has inserted a brief 5 minute English newscast at approximately 0600 and the best channels to observe this are 13830 or 9830 kHz.The conflict in the former Yugoslavia looks likely that it will drag on indefinitely and seriously affect stability in Central Europe, with a resultant increase in political tension, based on ethnic rivalry.

This year some international broadcasters decided to change their names. For example, Radio Beijing is now known as China Radio International and the BRT in Belgium is now "Radio Flanders International". You may not know that there were two separate external broadcasters, reflecting the linguistic divisions within Belgium. This year, the French speaking RTBF was closed and amalgamated with the Flemish speaking BRT.

There are also changes in the offing. Radio Norway International is announcing that they will be suspending their weekend English and Spanish broadcasts as of December 31st. All broadcasts will be exclusively in Norwegian.Radio Luxembourg this year closed down their English MW service on 1440 kHz although an English service continued on the "Astra" satellite and on shortwave on 15350 kHz. Now this too is going to cease as from December the 30th. The future of Radio Luxembourg on shortwave is in doubt, as there will only be the Flemish service on 6090 kHz. As Radio Luxembourg is heavily involved with cable systems and on MW, the high costs of HF broadcasting could easily force another international station off shortwave.

As mentioned last month, Radio Czechoslovakia is going to be split into two, when the two republics end their federation and become sovereign states on January 1st.

The break-up of the former Soviet Union has seen the rapid emergence of independent radio stations in the various republics. Most of these independent broadcasters are located within the Russian Federation, while Radio and Television seems to be more controlled in other CIS nations. Also the continued utilisation of the extensive HF radio network within the Russian Federation by international broadcasters has noticeably increased. Deutsche Welle in Cologne is now virtually broadcasting around the clock from Novosibirsk and Irkutsk in Siberia.

The BBC External Services and the VOA recently commenced broadcasting via the senders of Radio Tashkent in Uzbekistan. The BBC are targeting the Indian subcontinent with Hindi and Urdu broadcasts, while the VOA are in Farsi and Pushtu to Iran and Afghanistan.

An era ended in November, when the last edition of "London Calling" was published. It was a monthly guide to upcoming BBC World Service programming and was extremely useful to listeners. However the cost to the listeners and presumably the BBC was ever increasing. A subscription was around 25 pounds sterling annually. "London Calling" has been around for over 50 years. We will miss it.

I recently acquired the 8th Edition of "Gilfers Confidential Frequency List". This is a guide to Utility Frequencies and is very helpful to the serious monitor. I obtained my copy from Arthur Cushen in Invercargill NZ for around $40 Australian, but it may be in the Technical Bookshops. The latest edition now includes 1.6 to 4 MHz, which was left out of previous editions of the CFL.

All the alterations to the Maritime Services as from July 1st 1991 have been included. However, there are some slip-ups, eg the Radio Australia feeder frequency of 12190 kHz is included, although the site at Lyndhurst is now vacant and the senders have been mothballed. Likewise the ANARE frequencies are still listed although all comms are now by satellite; presumably the HF channels are there in case there are no satellite links.

The omission of the numerous Russian 500, 1000 and multi-channel systems is a serious drawback, as previous editions included these.Fortunately I have a copy of the 7th edition plus the "Press and RTTY Guide" which I can refer to. The latest guide also confirms what I have suspected,that most press services are no longer on HF.

TASS, DIPLO, the VOA, Reuters, AP, UPI and ANSA are all gone off shortwave. Only the North Koreans, the Japanese Kyodo News Service and the Taiwanese Central News Agency appear to be left.

In conclusion, may I wish you the compliments of the Season and hope that 1993 will bring along more surprises on Shortwave!

73 de VK7RH.

Education Notes

Brenda Edmonds, VK3KT, PO Box 445, Blackburn, VIC, 3130

In the hope of catering to the widest possible range of interests in the limited space available in this magazine, this column will henceforth appear only every second month. This does not mean that my interest in the field of education will be reduced, — simply that as new columns or topics are added, something has to go. It may mean that I have to give more attention to the column, to be sure that I get my message across efficiently.

In the ten years or so during which I have been writing this column, there have been major changes to the hobby, both in technological developments, and in the facilities and activities generally available. Some of the most significant changes for some time are those that will come into force under the revised Regulations. When they are released, they will need to be read carefully by all amateurs, preferably before they start to debate the merits or otherwise on air or on the Bulletin Boards.

This is the first occasion on which proposed changes to any part of the Regulations have been published for scrutiny or comment by the amateur body before negotiations were completed. Many operators, WIA members and others, took the opportunity to submit their views on the proposals to DoTC and it is the understanding of the WIA that all submissions were given due consideration. Obviously, not all amateurs will be pleased with the final result, but I think most will agree that a goodly measure of deregulation has been achieved, and the amateur service as a whole has benefited.

There will, no doubt, be as much opposition to some of the changes as there was

to the establishment of the Novice grade of licence, or the granting of VHF privileges to Novices. Please remember that most of the proposals put to DoTC had been part of WIA policy for several years, and the time for opposition was when the proposals were first advanced. It is expected that most of the changes will make both entry to the hobby and operation by licensees simpler, and so will benefit the amateur body as a whole.

But as well as the entry level, the attitudes of the operators must be considered. So long as the amateur service is at the forefront of technical developments, and members are increasing their knowledge and skills, we are justified in seeking more privileges for our members. From the range of authors and articles published in Amateur Radio magazine, and the lengthening list of accredited examiners, our members' enthusiasm is not in doubt.

Incidentally, statistics show that the majority of Novices do indeed continue on to a higher grade of licence, which was the intention of the Novice licence. In fact, the figures from WIA Exam Service show that the number of examinations per month for AOCP theory is slightly higher than for NAOCP theory.

While on examinations, it is obvious that there will have to be changes in the question banks as a result of the deregulation. The Regulations bank in particular will be reduced. The Examinations Sub-committee has been working on modifying the existing bank and preparing new questions to be added, but any possible questions contributed by readers will be welcome. Extra theory questions will also be welcome, especially any relating to new privileges for Novice level. Questions can be sent to me c/o the Federal Office.

Thank you all for your support and input over the year. May I wish all readers the Compliments of the Season, and a safe and successful New Year. **ar**

Sign up a new WIA member today — use the form on the reverse side of the AR address flysheet.

Awards

John Kelleher VK3DP — Federal Awards Manager

I have been publishing details of some awards which are not only easy to acquire, but colourful additions for the shack wall. I did this to activate interest in awards, and to allow all grades of licence to participate.

Some operators have criticised this, saying that my procedure is only "dime-a-dozen" activity, and asking for details of some awards which are more difficult to obtain, possibly hinting that because they are more difficult to attain, then they must be more prestigious. NOT SO. One operator can get as much joy out of receiving a local club award, as another will in achieving say WAS or DXCC. It is a matter of taste. So it has always been my intention to satisfy both camps.

You would help me greatly, if you specified the particular awards you want published. Space permitting I will oblige.

To whet your appetites, here is one award which is not too easy, not too hard. It is the French DTA award. More commonly known as the Diplome des Terres Australes. To obtain this award, fulfil the following requirements :

Provide proof of contacts with the following French territories.

FT8X Kerguelen Island
FT8Z Amsterdam & St Paul
FTF8W Crozet Island
FT8Y Adele Island

It comes in two classes, the DTA, for proof of contact with three of the four territories, and DTA Excellence for proof of contact with all four territories.

Send your application, along with a fee of USD6-00 to :

Max Pomel
FE6AXP
PO Box 73
Lempdes F-63370
France

or through your friendly awards manager.

Many thanks to those who sent me details of their club awards for publication in the K1BV world directory. These have been published in AR, and forwarded to Ted Melinosky, K1BV.

DXCC Profile No 2

Keith Schleicher VK4KS

Keith, now 74, became an amateur in 1937. During WWII he was an Army signals instructor. While employed by a radio and electrical organisation, he assisted in designing and manufacturing the first two-way multi-channel radio for use in the taxi industry. He was one of four operators who

Keith Schleicher — VK4KS

established Mellish Reef as a separate DX country.

His early amateur equipment was a TNT grid and plate modulated with a 201/A final. Since then he has used Swan, Kenwood, and now has a IC751A, which he uses in conjunction with a TH6DXX.

His DXCC listings as at 1st June 1992 were; Phone 323/365, CW 127/134 and Open 323/365.

Keith's advice for up comers is to be patient, listen, listen, and have a good information source.

DXCC Profile No 3

Mike Bazley VK6HD

Mike began his amateur radio career as an SWL. He was first licensed in 1950 as G3HDA. He became VK6HD in 1969. He also served the WIA admirably as the Federal Awards manager for some time.

His early equipment was built around some war surplus gear, an old Marconi T1155, and a 40 m dipole. He now has more sophisticated equipment, and a greater range of antennas. These include a 160 m dipole, switched slopers, and beams on 40 m and 20 m as well as GPs on 30 and 15 m, with plans for more.

His one particular aim is to achieve total DXCC on 40 m, and to rack up 300 countries on 80 m.

He says that most of his DXing is carried out 300 minutes before, and 30 minutes after sunrise, bearing in mind that most VK stations are still enjoying their nocturnal rest.

His advice is to listen, listen, listen. Do not ignore the WARC bands, where there is good DX, and little or no opposition.

Mike's current DXCC listings are ; Phone 323/336, CW 314/331, Open 323/343. **ar**

Repeater Link

Will Mc Ghie VK6UU 21 Waterloo Crescent Lesmurdie WA 6076
Packet : VK6UU@VK6BBS

Broad Band

Pagers have brought about overload problems in the amateur 2 metre band. There are many articles now on pagers and how to live with them. Most reviews of amateur 2 metre equipment now make mention of the receiver's ability to handle strong signals close to the 2 metre band. There is usually a comment about the broad band nature of 2 metre receivers. Receive coverage many megahertz above and below the 2 metre band is now the norm. This wide receive coverage is usually put forward as the main reason for the poor rejection of out of band pager transmitters.

In the absence usually of performance tests on the receiver's overload characteristics, I doubt that the conclusions reached are always correct. It is true that most of the new breed of FM transceivers can receive a wide frequency range, but this does not always mean that the RF front end is broad band. Some of these receivers, if not all, have varicap tuned front ends. Tuning the front end to track the frequency that the receiver is tuned to is essential to maintain any performance over such a wide band width. This front end tuning is not usually done on the UHF band, only VHF. The assumption that your new 2 metre transceiver or dual band transceiver has a wide front end band width on VHF is not necessarily true.

My reason for commenting on the supposed poor performance of amateur 2 metre transceivers, is that in my experience with a wide range of VHF receivers, this blanket assumption is not true. There are many factors that influence a receiver's overload performance. To focus on the broad band receive ability of the receiver can be wrong. It is true that a more selective front end is the answer most of the time, but the point is that the selectivity required is impossible to achieve.

For example if you have a receiver that has a front end only 20 kHz wide, and all other frequencies attenuated by 100 dB, then you have the ultimate in rejection of all other frequencies. Overload of this receiver would be impossible. However no other frequencies could be tuned to, only those in the 20 kHz passband.

In the real world good front end selectivity for 2 metres must cover all of the 4 MHz of this band. Outside of this 4 MHz the front end tuned circuits gradually introduce more and more attenuation. However with the pager band being so close to the top of the 2 metre band, there is almost no attenuation by the front end tuned circuits. To achieve any useful attenuation in the pager band, a sacrifice of sensitivity of the top megahertz of the 2 metre band has to be made. Even then the attenuation of the pager transmitters may only be 10 dB.

The point is that with typical front end selectivity, be it a professional radio or an amateur radio, rejection of strong signals so close is a big problem. Looking at circuit diagrams of professional radios and amateur radios makes you wonder why the assumption that the amateur radio is so much poorer in overload performance. The differences, if there are any, are subtle.

One area where amateur VHF radios may be poorer in performance is the IF filter. Ceramic filters are often used rather than crystal filters. The resultant IF selectivity as a consequence does not offer as much attenuation to frequencies that pagers are on. This can mean that pager transmissions could be heard, not due to receiver overload, but insufficient attenuation of the strong signals in the IF.

One such example was to be found in our 7350 repeater, VK6RBN. The repeater mute would open in a random fashion with a very noisy signal and a trace of pager audio. As the nearest pager was 50 km away, front end overload was considered unlikely. A change in IF filter removed the problem. At a later time this same repeater suffered pager interference again, this time from a new pager about 8 km away. Front end cavity filters in the repeater's receiver would not remove the problem. The receiver was an Icom IC22A with lots of front end tuned circuits, 6 in total. The final cure was to replace the receiver with a FM 828 receiver. The problem with the IC22A receiver, even though not positively identified, was probably the IF ceramic filter. Even after changing this filter to the best ceramic filter that we could find, it still lacked the performance of a crystal filter. The FM 828 receiver required no extra front end selectivity. This receiver has less front end tuned circuits than the IC22A. This further supports the idea that the problem with the IC22A receiver was not in the front end selectivity.

IF rejection is one topic rarely covered in articles on amateur VHF receivers. The IF filter is required to pass a narrow band of frequencies, (about 30 kHz) and reject all others. This filter is the main reason why a transmission on one frequency is all you hear, and not all the others. Frequencies further away from the wanted bandwidth are attenuated. The attenuation at + and — 20 kHz would be typically 20 dB, and increasing rapidly so that at + and — 50 kHz it reaches its ultimate rejection. This ultimate rejection remains about the same for all frequencies greater than + and — 50 kHz from the centre frequency. Depending on the type of IF filter your radio is fitted with, this ultimate rejection varies from 50 to 100 dB. If the worst case is taken where the IF ultimate rejection is 50 dB, then it is not hard to understand why a

VHF communications

This quarterly publication, especially covering VHF, UHF and Microwaves, is essential reading for the serious VHF/UHF enthusiast.

The original is published in German by Terry Bitton, OHG, and the English language version is published by Mike Gooding, G61QM.

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strong pager transmission could be heard, not due to overload, but poor IF rejection.

For example, a pager may be received by your 2 metre receiver at 1000 μV. That's right 1 millivolt. This pager is say 200 kHz away from the frequency you are tuned to. The IF rejection being 50 dB attenuates the pager to the equivalent signal strength of about 4 μV. This means that it is as if the pager is a 4 μV signal on the frequency you are tuned to. This is an over simplification because other factors in the receiver contribute to attenuating the pager signal, but the point to be made is that strong pager signals can pass through the IF and be presented to the detector circuits. The resultant demodulated output would be distorted, but could show up as the mute opening with distorted pager audio. IF ultimate rejection is a big factor in assessing the performance of a receiver, not just front end selectivity.

The point to stress again about front end selectivity is that pager transmissions are so close, that front end tuned circuits have no effect on attenuating these signals, maybe a few dB if at all. The subject of receiver performance is a complex one. Blanket comments like broad band receiver coverage means wall to wall pager problems can be wrong.

My work uses several VHF and UHF base radios in the inner city area. These radios are Philips FM 814's and 815's,(FM 828's in rack mounting boxes). Not modern but with a good name for performance. However our systems are not fitted with CTCSS and suffered greatly from overload. The result of two cavity filters and a front end crystal filter have reduced the intermod problem by about 90%. Even with good quality professional receivers and a stack of extra front end selectivity, overload is still a problem.

CTCSS encoding decoding is the best way of reducing the effects of intermod to acceptable levels. Until CTCSS is more widely used in the amateur service to greatly reduce intermod problems we are stuck with unpleasant noises. Blaming the "wide band" amateur receiver is at times misplaced.

My knowledge of FM receivers has its limitations and there must be many amateurs who have a better understanding. If you fit this category how about sending me an article for inclusion in Repeater Link.

FTAC Notes

John Martin, VK3ZJC FTAC Chairman

New FM TV Records

Two inaugural ATV records have been added to the list. The first is an FM TV contact on 1250 MHz between Simone Buck, VK2TOY, and Chris Hailes, VK2XQW. The distance was 105.7 km. The second is a new 10 GHz ATV record between Mal Crew, VK3BBU, and Jim Collins, VK3ZYC, using Gunnplexers over a path of 63.4 km. Other members of Mal's team were Peter Ford, VK3TAF and Max Chadwick, VK3WOD, and Jim was assisted by Bill Trigg, VK3JTW.

Congratulations to all involved in these new records. It looks like interest in microwaves and portable operation is on the increase, so hopefully there will be more of this kind of activity over the summer season!

The photos show the portable equipment and antennas used by Simone and Chris in setting their 1250 MHz record. Details of the 10 GHz record set by Mal and Jim are given elsewhere in this issue.

50 MHz Records

Lance Bickford, VK4ZAZ has supplied details of several 50 MHz contacts, including mobile contacts with 9H1JN and PE1BNK, a short path contact with 9Y4VU, and a long path contact with 9L1US. The mobile contacts do not break Lance's existing record with FM5WD, but the long path contact with 9L1US is a new VK4 long path record. The contact was made on October 16, 1990 and the distance is 22550 km. Congratulations Lance.

A typing mistake on my part caused a 50 MHz contact between Moss VK7IK and W4EQM to be listed in the latest Call Book as a VK7 long path record. This is of course incorrect — the contact made by Moss with W4EQM was his previous VK7 short path record, now superseded by his contact with PA0LSB. No claim has been made yet for a VK7 long path record.

ar

Silent Keys

Due to increasing space demands obituaries should be no longer than 200 words

The WIA regrets the passing of :

W A (William)	Miller	VK2MWA
G C (Gavin)	Douglas	VK3YK
B H (Bernie)	Gates	VK6KJ

Jack Gayton VK4AGY

Jack passed away 22 October 1992, just two days short of his 68th birthday, "in harness", while putting the finishing touches to November's QTC.

Although he left school in Grade 6, due to very bad eyesight, Jack nevertheless became an innovative self-made electronic experimenter, culminating in a Novice licence in the "70s, and quickly upgrading to "Full-Call" status as VK4AGY.

A great family man, Jack still found the time to help the amateur fraternity in Queensland, first as councillor (on and off for some 15 years), then as editor and printer of QTC from the early '80s onwards. Shortly after, he was broadcasting officer for VK4WIA news, spending much of his own money on computers, copiers and gear to keep the quality top-notch.

It was a joy to be associated with him; he was bubbling over with great and achievable ideas to improve QTC, and "his" news service.

Unfortunately, his final test, the rebroadcast of the Darwin epic, something he had looked forward to, came just too late for him.

Jack has not only left a big empty space in his family, but also in the VK4 amateur world, especially the news team of Peter, Annette and myself.

It was an honour to have been able to present Jack with the badge and certificate of Life Membership in Gympie — his birthplace — during the Gympie Gold Fest, even if it was only two weeks before his untimely passing.

Personally, I will continue to remember the real friendship established over the past 15 years.

John Aarsse VK4QA

Graham Colley VK3QZ (for 50 years) latterly VK4BQZ

I am sad to report that Graham passed away on 12 October 1992. Born on 8 June 1906, he was educated at Sale Technical School to the level of Electrical Engineer, and at the same time became interested in wireless, built some simple sets and joined the WIA.

In Melbourne in 1925 he attended the WIA Dinner to welcome Fred Schnell 1MO-1XW and officers of the visiting American Fleet.

In 1930 Graham and Olive were married — a happy marriage which lasted over 60 years.

During the Great Depression, with his electrical engineering status, he was able to take charge of township electric supplies in the country.

With the outbreak of war Graham was the first to enlist from Quambatook into the RAAF, where he was briefly flying as "Sparks" on coastal surveillance, but was soon selected to go into intensive training for radar.

After discharge, Graham took a job with the SECV checking motors etc in sawmills, quarries, factories etc. He eventually became so knowledgeable and experienced with these problems that he was sometimes called in for advice re difficulties in the big Morwell generating plant.

While travelling about Gippsland for the SECV Graham visited virtually every ham in the area, and set about organising radio clubs, conventions and group visits.

In 1985 Graham and Olive moved to the Palm Beach area south of Brisbane, and Graham got the call VK4BQZ.

It was very unfortunate that a brain tumour progressively affected Graham's speech and mental processes during the last four or five years of his life.

Bruce Mann VK3BM

Harry Kinnear VK3KN 12.12.1902-26.8.1992

It is with deep regret we record the passing of Harry Kinnear — formerly VK3KN and VK4VJ.

He was the president of the WIA Victorian Division for 1934-35 and 1945-47, and editor of Amateur Radio magazine 1933-36.

Harry Kinnear deservedly gained the title of "the father of Amateur Radio magazine", having been its founding editor.

His peers on the Divisional Council and those involved in the early days of AR magazine described him as the driving force behind getting the magazine started.

As a young and enthusiastic member of Council in 1933, Harry promoted the idea of having a house magazine, and found himself given the job.

The name "Amateur Radio" for the magazine was his idea.

Harry Kinnear in the post-World War II period played a continuing role in WIA affairs, and was federal vice-president in 1953.

The Victorian Division and its members benefited from Harry's involvement in obtaining disposals equipment and organising sales, and his businesslike contribution to the administrative side of the Institute.

In October 1983, on the occasion of AR magazine reaching its golden jubilee, the Victorian Division made Harry a life member in recognition of his outstanding service to amateur radio, being a past divisional president, and the far-sighted attitude he had in pushing for an Institute journal.

He received this, the highest honour awarded by the WIA, with humility and great pleasure.

Harry Kinnear has gone, but left a lasting and valuable contribution to our Institute. We extend sincere condolences to his family, friends and surviving contemporaries.

Jim Linton VK3PC
President
WIA Victorian Division
ar

Stolen Equipment

Stolen from the residence of VK3XCE on or about 5th October 1992.

YAESU FT280R 2m Transceiver S/N 2F22898, YAESU YM24A Mic/Speaker.

STANDARD C146A 2m Transceiver, S/N unknown, missing its battery case, extra XTALS fitted for RPT 6700, 7000 and Simplex 6500.

STANDARD CAT08 Mic/Speaker.

STANDARD CMP08 Rubber Duckie Antenna.

Both above units have carry cases fitted.

Contact point for recovery is Croydon (Vic) CIB (03) 725 1977.

Stolen from Grant Jeffrey VK3KGM on Wed 4th November 1992, KENWOOD TM221A 2m FM Txcvr, S/N 8022583, distinguishing feature: one LED backlighting lamp inoperative. Radio was fitted to a Toyota 4WD S/Wagon which was stolen from Linlithgow Drive near Botanical Gardens. Vehicle has not been recovered at the time of publication.

Details to 1 Pinniger Street, Broadford, TEL (057) 84 1681, or (03) 808 1357, BUS (03) 282 4394.

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HAMADS

TRADE ADS

● AMIDON FERROMAGNETIC CORES: For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney: Webb Electronics, Albury: Assoc TV Service, Hobart: Truscotts Electronic World, Melbourne.

● WEATHER FAX programs for IBM XT/ATs *** "RADFAX2" $35-00, is a high resolution shortwave weatherfax, morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" $45-00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT" $75-00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add $3-00 postage. ONLY from M Delahuntly, 42 Villiers St, New Farm QLD 4005. Ph (07) 358 2785.

FOR SALE NSW

● IC2GA Broadband VHF 2M FM handheld xcvr. Complete with huge battery and bench charger, $425; Doug VK2DHK, QTHR, (063) 31 7775

● TASCAM M32 & M34 tape machines, TASCAM M30 mixer, misc recording equipt, CD & vinyl sound effect records, tapes, bargain prices, VK2WW QTHR (02) 546 1927.

● YAESU FL2100B Linear Amp, S/N 7I190424, $750 ONO plus freight, VK2CYI QTHR (075) 24 6844.

● PSU 240VAC-14VDC adjustable 15A, voltage regulation, meters, 0-20VDC, 0-20ADC, one owner-maker, $200, 3 mth warranty, (065) 53 1365.

● YAESU FT620 6m SSB/CW/AM Tx/Rx, YAESU VC75 Speech Proc, Mic, Cables, both in good cond, $250; Chris Williams VK2YMW (02) 487 2764 AHrs.

● YAESU FT200 working but needs some attention, suit restorer or useful for spares, S/N 4121257, $150; LAFAYETTE HA600 comm Rx, suit student, $50; DSE EXPLORER 70cm FM Txcvr, S/N 6300338, $150; Peter VK2BEU, QTHR, (02) 872 3381.

● YAESU FL2100B Linear, S/N 5H310330 plus four slightly used 572B finals $2400; KENWOOD TS520S xcvr with manual, desk mic, & 2 unused finals, exc con, $600 S/N 811249, separate or together; Bob VK2GZ QTHR (069) 62 3576.

● Icom 551-D 6 metre all mode transceiver, VG cond, original packing, manuals, schematics, etc. 100W, $520. Kenwood HT 2M TH-215A, Ex cond, belt clip, 2 battery packs, original packing, manuals, etc. $495. 6M 5 el beam, VG condn, $60. Brian VK2MQ PH (069) 471 213.

FOR SALE VIC

● YAESU FT200 xcvr $295; loud speaker box with PSU; HEATHKIT Txcvr 40m, 12V PSU, $195; DX100 Comm Rx $100; all working OK, Frank VK3CFF, (053) 38 1927, transceivers only to licensed operators.

● YAESU FRDX 400 Rx, No WARC bands, $75; WILSON SY2 Triband beam antenna, requires minor attention, $150; VK3MJ QTHR (03) 439 6068.

● YAESU YM-24A speaker/mic, suit FT-208 etc, $30; YAESU NC-9C NICAD wall charger $10; STANDARD SR-CSA base master suits Standard h/held C146A, $10; ICOM BP82 battery pack, new unused, $65; Rodger VK3XCE QTHR (03) 726 0409.

FOR SALE QLD

● TEN TEC "CENTURY 21" xcvr 80-10 QSK CW, S/N 570-2182, $420; ROLLER INDUCTOR with turns counter, $75; VK POWERMATE 5 Amp PSU, full kit inc trfrmr $50; EMOTATOR 105 rotator $100; ELECTRONIC keyer $70; "DOC" VK4CMY (076) 61 6200 (076) 61 7494.

● VALVE SOCKETS for 4CX1000A, QB3/300 & QQEO6/40, .5" AMPEX recording tape, 10 in spools, 100W AM modulation trfmrs, John VK4AAF (079) 28 6573.

FOR SALE SA

● KENWOOD TS930S, inbuilt ATU, SHURE 444D mic, Bencher key & keyer, all orig books & boxes, $2000; VK5UW (08) 332 5068.

● ICOM 2KL SS auto Linear Amp, ICOM matching 30A PSU, selling out station, $1000 off standard price; HT trfmr Gen Elect 2000V super power; VK5DC QTHR (08) 31 4194.

WANTED NSW

● FIM-3 plug-in module; FV101B ext VFO with lead; FRG7 gen cov RX; Ray VK2FW (063) 65 3410 am, (063) 62 4488 pm.

● YAESU FT707, will pay $500, Doug VK2DHK QTHR or (063) 31 7775.

WANTED VIC

● STANDARD 2m amp CPB58 working or not working; George VK3GWK (051) 74 3930.

WANTED QLD

● REPAIRING old test equipment, would appreciate any details/circuits of:- UNIVERSITY Supertracer model AST, ADVANCE timer counter TC9B, PALEC TV-M VT Voltmeter, can pay costs plus; VK4EF 97 Jubilee Tce, Bardon, Brisbane 4065, (07) 366 1803.

● CIRCUIT diag & h/book for Commonwealth Electronics RF amp type AM17A DCA type Y5/1351, all costs paid, Paul Kay, 20 Gilbert Rd, Windsor QLD 4030.

● ICOM IC202 2m ssb Txcvr, working order, price to Gordon VK4KAL QTHR (079) 85 4168 after 6pm.

WANTED SA

● 6 POS DUAL bank HD ceramic bandswitch; 1000pF AIR variable cap 1/16 in spacings; SMALL prop pitch motor; NATIONAL microwave oven transformer type ANE6005-57; details to Paul VK5TT (086) 45 3971 BH (086) 45 5019.

Repeaters — additions, deletions, alterations. Have you advised the WIA of changes needed to the repeater list?

Morseword 69

	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

© Audrey Ryan 1992

Across:
1. Silly
2 Roast
3 Local Taxes
4 Drop down
5 Tack
6 Indian Dress
7 Singer
8 Everyone
9 Successor
10 Attempts

Down:
1 Cheeky girl
2 Shoot
3 Fine sediment
4 Spoken
5 Musical title
6 Baulk
7 Edges
8 Fearful
9 Love
10 Waves

Solution Page 60.

Hamads

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.
*Eight lines per issue free to all WIA members, ninth line for name and address
Commercial rates apply for non—members. Please enclose a mailing label from this magazine with your Hamad.
*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.
*Copy typed or in block letters to PO Box 300,
Caulfield South, Vic 3162, by the deadline as indicated on page 1 of each issue.
*QTHR means address is correct as set out in the WIA current Call Book.

*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.
*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.
Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re—sold for merchandising purposes.
Conditions for commercial advertising are as follows: $25.00 for four lines, plus $2.25 per line (or part thereof) Minimum charge — $25.00 pre—payable.

State: .....

Not for publication: ❑ Miscellaneous ❑ For Sale ❑ Wanted

Name:..... Call Sign: ..... Address: .....

Solution to Morseword No 69

Page 59

	1	2	3	4	5	6	7	8	9	10
1	—	•	•	•	—	•	•	—	•	—
2	—	•	•	•	•	—	—	•	—	•
3	•	—	•	•	—	—	•	•	•	•
4	•	•	•	•	•	—	•	—	•	—
5	—	•	•	—	•	•	•	—	•	•
6	•	•	•	•	—	•	—	•	•	•
7	—	•	—	•	—	—	—	•	—	•
8	•	—	•	—	•	•	•	—	•	•
9	•	•	•	•	•	•	•	•	—	•
10	—	•	—	•	•	•	•	•	•	•

Solution for Morseword No 69
Across: 1 draft; 2 bake; 3 rates; 4 sink; 5 nail; 6 sari; 7 tenor; 8 all; 9 heir; 10 tries.
Down: 1 minx; 2 fire; 3 silt; 4 said; 5 cats; 6 jib; 7 rims; 8 timid; 9 like; 10 tides.

TRADE PRACTICES ACT
It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that, the provisions of the Act are complied with **strictly.**

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All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

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HOW TO JOIN THE WIA

Fill out the following form and send to:

The Membership Secretary
Wireless Institute of Australia
PO Box 300
Caulfield South, Vic 3162

I wish to obtain further information about the WIA.

Mr, Mrs, Miss, Ms:.....

.....

Call Sign (if applicable):.....

Address:.....

.....

.....

State and Postcode:.....

WIA Morse Practice Transmissions

VK2BWI Nightly at 2000 local on 3550 kHz

VK2RCW Continuous on 3699 kHz and 144.950 MHz 5 wpm, 8 wpm, 12 wpm

VK3COD Nightly (weekdays) at 1030 UTC on 28.240 MHz and 147.425 MHz

VK3RCW Continuous on 144.950 MHz 5 wpm, 10 wpm

VK4WIT Monday at 0930 UTC on 3535 kHz

VK4WCH Wednesday at 1000 UTC on 3535 kHz

VK4AV Thursday at 0930 UTC on 3535 kHz

VK4WIS Sunday at 0930 UTC on 3535 kHz

VK5AWI Nightly at 1030 UTC on 3550 kHz

VK6RAP Nightly at 2000 local on 146.700 MHz

VK6WIA Nightly (except Saturday) at 1200 UTC on 3.555 MHz

WIA Divisional Bookshops

The following items are available from your Division's Bookshop (see the WIA Division Directory on page 3 for the address of your Division)

	Ref	Price to Members
ANTENNAS		
Ant. Compendium Vol 2 Software 5.25" IBM Disk	BX293	$18.00
Antenna Collection — RSGB	BX391	$39.60
Antenna Compendium Vol 1 — ARRL	BX163	$19.80
Antenna Compendium Vol 2 — ARRL	BX292	$21.60
Antenna Impedance Matching — ARRL	BX257	$27.00
Antenna Note Book W1FB — ARRL	BX179	$18.00
Antenna Pattern Worksheets Pkt of 10	BX902	$2.70
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Physical Design of Yagi 5.25" IBM Disk	BX388A	$18.00
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Reflections Transmission Lines and Antennas — 5.25" IBM	BX348A	$18.00
Reflections Transmission Lines and Antennas — ARRL	BX348	$36.00
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Yagi Antenna Design — ARRL	BX164	$27.00
ATV		
The ATV Compendium — BATC	BX270	$15.80
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Morse Code Tapes Set 2: 10-15 WPM — ARRL	BX332	$16.70
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Morse Code Tapes Set 4: 13-14 WPM — ARRL	BX334	$16.70
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Weather Satellite Handbook Software 5.25" IBM Disk	BX326	$18.00
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